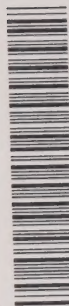


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ROYAL COMMISSION OF INQUIRY INTO CERTAIN
DEATHS AT THE HOSPITAL FOR SICK CHILDREN AND
RELATED MATTERS.

Hearing held
8th floor
180 Dundas Street West
Toronto, Ontario

The Honourable Mr. Justice S.G.M. Grange

P.S.A. Lamek, Q.C.

E.A. Cronk

Thomas Millar

Commissioner

Counsel

Associate Counsel

Administrator

Transcript of evidence
for
September 26, 1983

VOLUME 39

OFFICIAL COURT REPORTERS

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595-1065

Becker
X: Roland
Ortved
Hunt
Sykes
Tobias



ROYAL COMMISSION OF INQUIRY INTO CERTAIN
DEATHS AT THE HOSPITAL FOR SICK CHILDREN
AND RELATED MATTERS.

Hearing held on the 8th Floor,
180 Dundas Street West, Toronto,
Ontario, on Monday, the 26th day
of September, 1983.

THE HONOURABLE MR. JUSTICE S.G.M. GRANGE - Commissioner
THOMAS MILLAR - Administrator
MURRAY R. ELLIOT - Registrar

APPEARANCES:


P.S.A. LAMEK, Q.C.)	Commission Counsel
E. CRONK)	
D. HUNT	Counsel for the Attorney- General and Solicitor General of Ontario (Crown Attorneys and Coroner's Office)
I.J. ROLAND)	Counsel for The Hospital for Sick Children
R. BATTY)	
M. THOMSON)	
D. YOUNG	Counsel for The Metropolitan Toronto Police
W.N. ORTVED)	Counsel for numerous Doctors at The Hospital for Sick Children
K. CHOWN)	
B. SYMES	Counsel for the Registered Nurses' Association of Ontario and 35 Registered Nurses at The Hospital for Sick Children

(Cont'd)



APPEARANCES: (Continued)

M. WHARTON	Counsel for the Ontario Association for Registered Nursing Assistants
D. BROWN	Counsel for Susan Nelles - Nurse
G.R. STRATHY	Counsel for Phyllis Trayner - Nurse
B. JACKMAN	Counsel for Mrs. M. Christie - R.N.A.
J.A. OLAH) N. ARNOLD)	Counsel for Janet Brownless - R.N.A.
W.W. TOBIAS	Counsel for Mr. & Mrs. Hines, (parents of deceased child Jordan Hines)
F.J. SHANAHAN	Counsel for Mr. & Mrs. Dominic Lombardo (parents of deceased child Stephanie Lombardo); and Heather Dawson (mother of deceased child Amber Dawson)
J. SHINEHOFT	Counsel for Lorie Pacsai and Kevin Garnet (parents of deceased child Kevin Pacsai)
S. LABOW	Counsel for Mr. & Mrs. Gosselin, Mr. & Mrs. Gionas, Mr. & Mrs. Inwood, Mr. & Mrs. Turner, Mr. & Mrs. Lutes and Mr. & Mrs. Murphy (parents of deceased children)



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---Upon commencing at 10:00 a.m.

THE COMMISSIONER: Yes, Mr. Scott?

MR. SCOTT: Before we begin, I was away last week, but I am informed that some reference was made last week in Dr. Rose's testimony to a workshop that is being sponsored by the Research Institute at the Hospital for Sick Children on October the 31st and November the 1st, 1983.

As a result of that reference in the testimony I asked Dr. Aser Rothstein, who is the Director of the Research Institute, to write to you to describe what it is and what it proposes to do. He has done so, and I have delivered that letter. I should say that I have a copy of the letter as you know, and I will make it available to counsel if they wish to see it. I don't think, however, it is necessary that it become an exhibit.

THE COMMISSIONER: All right, thank you, Mr. Scott. Mr. Young?

MR. YOUNG: Before we get underway, I wonder if I might ask a few questions which may help you clarify exactly what is going to happen here tomorrow afternoon. I understand Mr. Sopinka has an application or two that he is bringing. I spent some of the weekend indeed as Mr. Percival did



1
2 in reviewing the transcripts to determine just what
3 the problem is, and in fact what solution Mr. Sopinka
4 is asking for. I don't know at this point, I don't
5 know whether or not, Mr. Commissioner, we are expected
6 tomorrow to come with arguments, or whether or not
7 we are simply going to hear the parameters of the
8 problem.

9 THE COMMISSIONER: Well, I wanted to
10 be satisfied there was a problem before setting aside
11 any time to hear it. If there is no problem, then
12 the application will be dealt with at the time. If
13 there is a problem, if there is a serious problem -
14 isn't that your understanding of it, Mr. Brown?

15 MR. BROWN: Yes, that is my under-
16 standing.

17 THE COMMISSIONER: The issues are
18 first, one of them, the course of the hearing and
19 whether there should be any reference; presumably
20 to Mr. Sopinka's client at this stage, particularly
21 as to her physical appearance and such things as
22 that.

23 MR. BROWN: I think, certainly not
24 really a reference to the client, that is inevitable.
25 The major concern was the use of evidence which might
be more relevant on the second phase which may not
have probative value but is extremely prejudicial



1

2

particularly to the public media.

3

THE COMMISSIONER: Yes.

4

MR. BROWN: I think that was the

5

thrust of his argument on that particular point.

6

THE COMMISSIONER: And the other

7

issue was?

8

MR. BROWN: The production of ---

9

THE COMMISSIONER: Oh, documents,

10

yes.

11

MR. BROWN: Of police statements of

12

various witnesses that will appear before the
Commission.

13

THE COMMISSIONER: Yes. Those are

14

two matters for Mr. Sopinka. I also want to discuss
with you, and I hope people have had a look at this
summary. I don't know whether everybody has seen it,
a summary that was prepared by Mr. Kelly, a young
lawyer who was, is or was associated with Mr. Olah.

18

Yes, Mr. Tobias?

19

MR. TOBIAS: Mr. Commissioner, just

20

while you are on the subject, if no one else has yet
made this request I wonder if I might borrow
Commission Counsel's copy?

22

THE COMMISSIONER: That is the whole

23

idea, Miss Cronk has a copy and that is being made

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available to everybody to look at.

MS. CRONK: Absolutely, sir.

THE COMMISSIONER: The only part of it that is done so far is the direct evidence of Dr. Rowe.

Yes, Mr. Young?

MR. YOUNG: Before we leave that, the first question I have, Mr. Commissioner, will the proceedings tomorrow be held in camera or are we going to be meeting in a formal sense, or is this going to be a discussion off the record?

THE COMMISSIONER: Well, I had intended to have it on the record. I had some trouble as you may have heard that last time I tried to have one that was off the record.

MR. YOUNG: Well, we certainly have no objection to that.

THE COMMISSIONER: I don't know whether it is to be recorded or not. Have you any thoughts on that, I would think you might well want it, it might be an advantage.

MR. BROWN: I thought it would simply be an extension of Mr. Sopinka's application before you.

THE COMMISSIONER: Yes. I don't want



1
2 to take the time off of our regular hearing, that's
3 all. So it will be 4:30, or perhaps we will take a
4 break at 4:30 and it will be at 4:40 or something.

5 Anything else? Yes. Well, now where
6 is Dr. Becker?

7 DR. LAURENCE EDWARD BECKER, Resumed

8 THE COMMISSIONER: Yes, is it
9 Mr. Roland or Mr. Scott?

10 MR. ROLAND: Yes.

11 THE COMMISSIONER: Mr. Roland.

12 EXAMINATION BY MR. ROLAND:

13 Q. Dr. Becker, on Thursday you
14 told us about the various kinds of reviews and
15 rounds that are done both in the Pathology Department
16 and in every other departments. You told us first
17 that there are pathology review rounds organized
18 by Dr. Gillan the chief resident, or I guess at the
19 time the chief resident in pediatric pathology. I
20 gather all of the staff and resident pathologists
21 would attend those conferences, would they?

22 A. That is correct.

23 Q. And then you told us that there
24 was secondly a regular clinical pathological confer-
25 ence, and those were every Friday and the entire
Hospital was invited to those, is that correct?



1

2

A. Yes.

3

Q. And those dealt with particularly

4

interesting cases that would arise on a weekly basis

5

out of the Pathology Department and out of the

6

autopsies performed in the Pathology Department, is

7

that correct?

8

A. Yes, it is.

9

Q. And I take it that the

10

pathologist who had been in charge of that particular

11

autopsy, or from time to time the resident who

12

actually did the autopsy, would present the findings

13

and those matters of particular interest to that

conference?

14

A. Yes.

15

Q. And matters would be reviewed

and discussed in the conference?

16

A. Yes.

17

Q. And I gather as well there

18

would be people at this conference who had dealings

19

with the particular child, or may have had dealings

20

with the particular child during their clinical

21

course, during the child's clinical course in the

Hospital?

22

A. Yes.

23

Q. And those matters I take it

24

25



1
2 would be raised as well in the course of this
3 conference to add to the information that was generated
4 by the autopsy from the Pathology Department?

5 A. Yes.

6 Q. And then you told us that
7 there were numerous other rounds, speciality rounds,
8 in cardiology and urology and other departments, and
9 I take it you as a staff pathologist, or other
10 pathologists or pathology residents would be invited
11 to those particular rounds on a case by case basis,
12 if those particular specialities were interested
in the pathology results in that particular case?

13 A. Yes.

14 Q. And that there would be a
15 discussion both of the pathological findings in the
16 context of the clinical course of that particular
child in the Hospital?

17 A. Yes.

18 Q. And you would discuss the
19 diagnosis I take it that was arrived at by the
20 pathologist as to the cause of death?

21 A. Yes.

22 Q. And you would relate that I
23 take it to the clinical findings of the child during
24 their course, during its course in the Hospital?
25



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A. Yes.

3

4

Q. And would the autopsy report
be completed at that stage?

5

6

A. It may or may not be completed
at that stage.

7

8

9

10

Q. And if it was completed I take
it you would be asked to expand on the findings, and
you would indeed present such things as slides and
other things, other information that wasn't part
per se of the autopsy report?

11

12

A. Yes, that is correct.

13

14

15

16

Q. Now turning to coroners' cases.
I understand it, coroners' cases, all coroners' cases
involving children dying anywhere in Metropolitan
Toronto are sent to the Hospital for Sick Children,
and that the autopsies are invariably done at that
Hospital?

17

18

19

20

21

A. Yes.

22

23

24

25

Q. And they have been so for
many years. It was so before the period in question,
during the period in question and it is still
currently the practice?

A. Yes.

Q. And that a number of the
pathologists in the department do the coroners' cases?



1

2

A. Yes.

3

Q. And that the cases themselves

4

are assigned by the Pathology Department on some

5

sort of rotor basis amongs the pathologists in the

6

department who are doing coroners' cases?

7

A. Yes.

8

Q. I take it then cases that

9

are coroners' cases are not individually assigned

10

by the coroner to a particular pathologist?

11

A. No, it is on the basis of

the schedule, as a general rule.

12

Q. Yes, all right. When an

13

autopsy is a coroner's case, is it confidential?

14

A. Yes.

15

Q. Are all the results obtained

16

from the autopsy treated as confidential by the

17

pathologists?

A. Yes.

18

Q. So that if a staff member in

19

the Hospital, or the treating physician, or indeed

20

the referring physician who was involved with the care

21

of the child, who was the subject of the autopsy,

22

asked you for some information about the results

23

of the autopsy, I take it you would not feel free

24

to release that information?

25



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2

A. Yes.

3

Q. What would you do?

4

A. I would suggest that he

5

contact the coroner.

6

Q. And would the coroner from

7

time to time authorize you to release information

8

to other professionals, the doctors and staff

9

members, for instance in the Hospital who were

10

interested in that information?

A. Yes.

11

Q. And was it only on that

12

basis that you would release the information?

13

A. Yes.

14

Q. Let's turn to your activities

15

as a pathologist in the Department at the Hosiptal.

16

You have told us that you do autopsies, and that

17

you do two kinds of autopsies; those that are

18

hospital autopsies and those that are coroner

autopsies?

19

A. Yes.

20

Q. I take it as well your

21

activities involve doing such things as biopsies?

A. Yes.

22

Q. And cytology?

23

A. Yes.

24

25



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Q. Can you tell us what cytology
is?

4

5

6

A. Cytology would be the method
by which we would look at individual cells rather
than tissue.

7

8

Q. Would that be of living
patients?

9

10

A. Yes.

11

12

Q. And what amount of your time
is devoted to doing biopsies and cytologies?

13

14

A. Approximately 30 per cent or
something.

15

16

17

18

Q. And how much of your time
would be devoted to doing autopsies?

19

20

21

22

A. About the same percentage.

Q. Can you tell us the priority
placed on the results of the work that you do
concerning the biopsies and cytology, especially
as compared to autopsies?

23

24

25

A. Well, a greater priority would
be put on the surgical and the cytology material.
The diagnosis would be established quickly and
reported quickly.

Q. And I take it that is obviously
because you want to provide the treating physician



1
2 with the results of those biopsies and cytologies,
3 so they can use that information to better treat the
4 patient?

5 A. Yes.

6 Q. So that is about 60 per cent of
7 your time involved in autopsies and biopsies and
8 cytology, how is the balance of your time spent?

9 A. The remaining is spent with
10 teaching of postgraduate and undergraduate students
and research and some administrative duties.

11 Q. Let's turn then to the
12 phenomena we have described as SIDS. You have told
13 us that it was defined in 1969 as a result of a
14 conference, and you have given us the definition.
15 Can you tell us, up until 1969, how SIDS, what we
16 now know as SIDS was treated, both by the medical
profession and by society at large?

17 A. It was a difficult problem,
18 prior to the definition of Sudden Infant Death
19 Syndrome, because there was a great deal of suspicion
20 cast on the parents having a child dying of Sudden
21 Infant Death Syndrome. There were often suggestions
22 of other things, such as suffocation, and it was
23 extremely difficult I think from the parent point of
24 view at that point when it had not been defined.
25



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Q. How did the medical profession treat the phenomena, did it even recognize that there was a phenomena that we now call SIDS?

A. There were probably individual pathologists that realized there was this phenomena but it certainly wasn't generally recognized.

Q. I take it there wasn't much interest in doing medical research into what we now know as SIDS before the late sixties or early seventies, is that so?

A. That is correct.

Q. And I gather that is because the children that we now identify as being the victim of SIDS were seen to be normal children, and there wasn't anything at that stage, at least in the sixties and early seventies, that was detected that would explain the reason for their deaths?

A. Yes.

Q. I gather now it is recognized that SIDS is the number one cause of death for children between the age of one week and one year?

A. Yes, it is.

Q. And that for instance in the United States there are over 7,000 SIDS deaths per year.



1

2

A. That is correct.

3

4

Q. And that it is the cause of
death for one in every 500 babies born?

5

A. Yes.

6

Q. Approximately?

7

A. Approximately, correct.

8

9

10

Q. And at the age of about three
months or thereabouts in that range, it is the cause
of death for more children than other causes of death
combined?

11

A. Yes.

12

13

Q. And I gather you have a
particular interest in SIDS from the standpoint of
a neuropathologist?

14

A. Yes.

15

16

Q. And that you have had that
interest for a number of years?

17

A. Yes.

18

19

20

Q. And have pursued it through
various research projects and publications that
you have been the author of?

21

A. Yes.

22

23

24

25

Q. And you have told us that
the Hospital for Sick Children is a particularly
unusual situation in North America, because it is



1
2 the repository of so many coroners' autopsies that
3 is all of the coroners' autopsies for children in
4 the Metropolitan Toronto area, and therefore sees
5 from a pathological view point a great number of SIDS
6 cases?

7 A. Yes, that is true.

8 Q. And that is unusual for an
9 institution anywhere in North America, and you
10 probably see more SIDS cases at autopsy than any
11 other institution?

12 A. Yes.

13 Q. I gather your interest in SIDS
14 means that with respect to these SIDS cases in the
15 Pathology Department, you either see them yourself,
16 or you learn about the pathological results in
17 virtually all of the cases?

18 A. Yes.

19 Q. And that is part of your ongoing
20 research interest in the cases?

21 A. Yes.

22 Q. And that you have been, I gather,
23 together with other members of the Pathology Department
24 the recipient of research funds to pursue your
25 interest in the phenomena we know as SIDS?

A. Yes.



1

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4

Q. And that there is indeed a foundation known as the SIDS Foundation and you are also actively involved in that?

5

A. Yes.

6

7

8

9

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Q. You told us that over a 10 year period from 1973 to 1982 there were 421 cases of SIDS, that were determined to be SIDS at autopsy in the Hospital for Sick Children, which amounts to I think, in my calculation, about one every nine days on the average?

11

A. Yes.

12

13

14

15

Q. And so I take it in the sort of time frame you would play some role of investigating the pathological findings of the SIDS case on a regular basis?

16

A. Yes.

17

18

19

20

21

Q. And you have told us as well that only 24 of those cases actually were of children who died in the Hospital. I take it then that all of the other cases, almost 400 of them were coroners' cases who came to the Hospital as coroner referrals?

22

A. Yes.

23

24

25

Q. Now, going back again to the history of SIDS ---



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THE COMMISSIONER: To be sure I understand that, the 24 cases, were they all of the SIDS deaths in the Hospital?

THE WITNESS: Yes.

THE COMMISSIONER: And would all of them necessarily have been reported to the coroner?

THE WITNESS: Not as far as I know.

THE COMMISSIONER: So I take it some of them were not actually coroners' cases at all?

THE WITNESS: That is right.

MR. ROLAND: Mr. Commissioner, I was talking about the balance which is almost 400.

THE COMMISSIONER: Yes, I understand that, oh, yes; but the 421 cases were coroners' cases; but the 24 cases in the Hospital not necessarily coroners' cases?

MR. ROLAND: Yes.

THE COMMISSIONER: So 24 isn't out of the 421?

MR. ROLAND: No, I thought it was.

THE WITNESS: It is included in the ---

MR. ROLAND: 24 is included in the 421.

THE COMMISSIONER: Then I haven't



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understood it, I am sorry. There were 421 cases that the coroner had.

THE WITNESS: The 421 cases includes all of the cases. Out of that 421, 24 died in the Hospital.

THE COMMISSIONER: Yes.

THE WITNESS: So 421 minus 24.

THE COMMISSIONER: I have a note here that the 421 cases were all coroners' cases, and I gather they were not?

THE WITNESS: No, they were not.



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THE COMMISSIONER: I see, all right.

3

I wonder if you could just, I don't think it matters,

4

but do you happen to know how many of them were

5

coroner's cases?

6

THE WITNESS: I am sorry, I don't

7

know the percentage.

8

THE COMMISSIONER: Oh, all right.

9

MR. ROLAND: But what we do know is

10

that the 397 cases of children who didn't die in the
hospital would all have been coroner's cases.

11

THE WITNESS: Yes, I would expect so.

12

THE COMMISSIONER: They all would be

13

coroner's cases?

14

MR. ROLAND: Yes, they would all be

15

coroner's cases. That's how they came to be autopsied

16

in the Hospital for Sick Children because they didn't

17

die in the hospital. They would come to the hospital

18

for autopsy as a result of being referred by the

coroner as a coroner's case.

19

THE WITNESS: Yes.

20

THE COMMISSIONER: I am getting slower

21

and slower this morning. Do I understand that the

22

421 cases, where they may not have all been coroner's

23

cases they at least were all autopsies, if they were

24

all subject to autopsy in the Sick Children's Hospital?

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THE WITNESS: Yes.

THE COMMISSIONER: Is there any reason why they should be subject to autopsy if the coroner hadn't required it. A child for instance who dies at home of Sudden Infant Death Syndrome.

THE WITNESS: Yes.

THE COMMISSIONER: And that presumably somehow or other, would it ever get to you to be subject to autopsy except by the coroner?

THE WITNESS: No.

THE COMMISSIONER: I see, all right.

THE WITNESS: Unless that child had then come to the hospital first -- I'm sorry, if the child had died at home the only way that we would then do the autopsy would be through the coroner.

MR. ROLAND: Q. And with respect to the 24 children who actually died in the hospital and were diagnosed as SIDS deaths, I take it most of those cases would probably have come to the hospital as a result of an apnea.

A. Yes.

Q. Yes. Unless they had been brought in for some other reason and it had been determined that they as well had a spell of apnea?

A. Yes.



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Q. Yes. Now, let's go back to the history of SIDS. You have given us the definition and I take it the purpose of that definition in 1969 was to separate out those babies who had died for study to determine the features, that is, the pathological features amongst other things common to those babies?

A. Yes.

Q. And I gather there has been also lots of studies with respect to the epidemiological characteristics of SIDS babies who have died and so on, but that from your perspective the purpose of the definition is to separate out the babies per pathological investigation?

A. Yes.

Q. I see. And I gather the purpose of that was that hopefully pathological investigation and research would identify some precise reasons for those deaths, or at least the particular features that were characteristic of those deaths?

A. Yes.

Q. And the hope I gather was that that would lead to some ability to both detect the phenomenon that's been defined as SIDS and to



1

2

treat it?

3

A. Yes.

4

Q. And it was for all of those

5

reasons that the definition was arrived at, to

6

separate out those babies for research and identification

7

A. Yes, that is correct.

8

Q. And then you have told us that

9

the definition was made more precise I take it in

10

1975 by a clarification of what constitutes a standard
autopsy?

11

A. Yes.

12

Q. And you have told us what some

13

of the constituent parts of that definition are;

14

first of all a specific protocol. Can you tell us

15

what a specific protocol is?

16

A. What they recommended at the

17

conference was a protocol that was acceptable by the

18

hospital that the pathologists worked at and was

19

familiar with so that they were willing to accept

most hospital protocols.

20

Q. I see.

21

A. In terms of the conduction of

the autopsy.

22

Q. And what is the hospital

23

protocol for the Hospital for Sick Children?

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A. The protocol is essentially outlined in the complete final autopsy report where this is an outline of the observations that should be made during the procedure.

Q. And is part of that protocol the exercise of excluding those things that may have been noted or observed during the life of the child clinically in order to determine that they weren't the cause of death?

A. Yes.

Q. And I take it the protocol is also to examine all of the organs of the body in some general fashion to detect whether or not there is some disease or some abnormality present, anatomically present?

A. Yes.

Q. With respect to those organs in order to exclude those causes as the cause of death?

A. Yes.

Q. And you have told us that the definition also includes at least 14 sections of various tissues of the body, examined under microscopy. How many sections are actually taken as an average or general matter, at least in autopsies performed



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at the Hospital for Sick Children?

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A. It would vary from 30 to 60 slides on average.

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Q. And if in the course of the standard autopsy you were able to detect some abnormality or some site of suspected disease, would that result in the slides being taken or tissues being taken from that particular site or area?

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A. Yes.
Q. Yes. I think the transcript and my review of it also said that the standard autopsy included virus and toxicological studies. Is that so?

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A. No, that's incorrect.

Q. Can you correct that?

A. The standard autopsy does not include toxicological or virological studies. Virological studies however would be done if they were indicated by the history but not done in a routine fashion.

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THE COMMISSIONER: Doctor, could we pause just for a moment. You refer to slides.

THE WITNESS: Yes.

THE COMMISSIONER: What are slides, what are they, are they pictures, pieces of tissue



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or what are they?

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THE WITNESS: They are small framents
of tissue that are placed on a piece of glass.

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THE COMMISSIONER: Why are they called
slides?

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THE WITNESS: Well, you slide them
under the microscope, that might be the reason.

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THE COMMISSIONER: Well, that is as
good a reason as any I guess. It is not what we
normally would call a slide.

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MR. ROLAND: As I recall from, I
think, my Grade 10 biology at least when we were
doing things like dissecting frogs we would place
pieces of tissue or small parts of tissue between
two glass slides so that it could be examined through
a microscope. Is that the sort of thing that we're
talking about?

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A. Yes.

18

Q. Is that the exercise that is
gone through?

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A. Yes, it is.

21

Q. So that the tissue itself is
placed on a glass slide?

22

A. Yes.

23

Q. And it may be treated by some

24

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2 chemical or by some colouring agent in order to
3 better observe the tissue?

4 A. Yes.

5 Q. Yes. And when you talk about
6 30 or 40 sections, are each of those sections taken
7 for the purpose of creating a slide?

8 A. Yes.

9 Q. Yes. Now, you told us that
10 the virus in toxicological studies are not necessary
11 and aren't standard in a standard autopsy. In what
12 circumstances would those studies be done in a standard
13 autopsy?

14 A. It would be done if there was
15 a clinical indication for doing them or there was
16 something found at the time of post mortem which would
17 suggest that they should be done.

18 Q. All right. For instance, we
19 have seen in the Jordan Hines autopsy that there were
20 virological studies done there, is that correct?

21 A. Yes.

22 Q. And was that because a virus
23 was suspected to play a role in the death of Jordan
24 Hines?

25 A. Well, that was the primary
diagnosis at the time the post mortem was being done.



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Q. Yes.

A. That of viral myocarditis.

Q. Yes.

A. So that it was the diagnosis
that had to be confirmed or excluded.

Q. I see. So that with that
information and that primary diagnosis I take it a
virus study becomes part of that standard autopsy?

A. Well, in that case it is
indicated, so, it would be done, yes.

Q. Yes. Now, the definition of
SIDS of course is that there is no apparent cause of
death disclosed by a routine autopsy. I take it then
that in doing an autopsy of a suspected SIDS death,
if you found a gunshot wound to the head that would
or may exclude SIDS as the primary diagnosis as the
cause of death?

A. It may, yes.

Q. Yes. And that's because the
child may have died from the gunshot wound to the
head rather than from SIDS?

A. Yes.

Q. Yes. If you found all of the
indicators for SIDS pathologically though I take it
SIDS might still remain a secondary diagnosis?



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A. With the pathological findings and with the history, yes, it would.

Q. Yes. And again with respect to viral infection, if you found a viral infection that was rampant in a child at autopsy, I take it that again that might be determined to be the primary diagnosis as the cause of death?

A. Yes.

Q. Such things as pneumonia?

A. Yes.

Q. But that if all of the other indicators of SIDS were found at autopsy it would again be the secondary diagnosis as the cause of death?

A. It would be a secondary diagnosis, yes.

Q. I see.

A. Those pathological findings would be a secondary diagnosis, yes.

Q. But when we're talking about SIDS death, I take it we are talking about SIDS as the primary diagnosis. When it becomes a SIDS death and goes into, for instance, your category of 421 SIDS deaths in the 10 year period, that is because SIDS is the primary diagnosis, not a secondary or



1
2 tertiary diagnosis?

3 A. Yes.

4 Q. Now, we have improved the
5 original definition of SIDS which began in 1969 by
6 the definition of a standard autopsy in 1975 and as
7 I understand your evidence we also have to enlarge
8 or improve the definition of SIDS by the phenomenon
9 described as missed-SIDS which starts with apnea
10 during life and has four clear or distinct pathological
11 features?

12 A. Yes.

13 Q. All right. And that indicates
14 I take it the progress the medical science has made
15 since 1969?

16 A. Well, indicates one aspect of
17 the progress since 1969.

18 Q. I'm sure medical science has
19 made progress in lots of other fronts but as far as
20 SIDS is concerned that is clearly progress made since
21 that time?

22 A. Yes.

23 Q. All right. Let's deal with
24 the one that you found most critical, that is, a
25 brain stem abnormality, scarring at the brain stem.
Is that thought to be either the cause or is it thought



12 1
2 to be the effect of periods of apnea?

3 A. That is a difficult question to
4 answer because it may be both cause and effect.

5 Q. Yes. Can you explain that.
6 For instance, I take it you are looking for a cause?

7 A. Yes.

8 Q. Primarily as a researcher?

9 A. Yes. And you analyse and search
10 for the effects in order to find your way if possible
11 back to the cause?

12 A. Yes.

13 Q. I see. And you say that this
14 may be both cause and effect. How is it thought that
15 it may be cause, first of all?

16 A. If the child had a - well, in
17 terms of the cause, well, if there is a scarring or
18 gliosis in that area of the brain stem then that could
19 interfere with the stability of the respiratory
20 system.

21 Q. Yes.

22 A. And cause either a central
23 or obstructive type of apnea.

24 Q. And how could it be the effect,
25 what's going on to lead you to the conclusion it could
be the effect?



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A. Well, secondary to the hypoxic episodes that occur, they also get secondary astrogliosis in the brain stem secondary to the hypoxia.

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Q. Right. And the other three features that you have described pathologically, I take it are thought to be the effect of periods of apnea rather than the causes of, is that correct?

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Q. So, as a researcher, I

take it you are looking at the brain stem in particular and you are particularly interested in it, in order to determine whether or not this area of the brain stem may be the answer to the cause for apneic periods and, thus, missed-SIDS, as a medical phenomenon?

A. Yes.

Q. Miss Cronk asked you, in her examination, if SIDS is a disease.

Can you tell us why you had trouble with that? You said it is a matter of semantics.

A. It depends on how a disease is defined. A disease can be defined as clinical symptoms and pathology, with or without known etiology or pathogenesis.

So, in that since, missed-Sudden Infant Death Syndrome could be called a disease but, Sudden Infant Death Syndrome, on the other hand, would probably not be a disease because there are no symptoms, other than the final one - death.

So, it is, I think, a matter of semantics, to a certain degree.

Q. As far as missed-SIDS is



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concerned, I take it, though, you, as a researcher into SIDS and missed-SIDS, have not yet determined what the cause of missed-SIDS is?

A. That is right.

Q. What you are looking at and what I gather you are particularly interested in is abnormalities in the autonomic mechanisms that control respiration?

A. In the autonomic mechanisms that control respiration, and automatic.

Q. And those, I take it, you think are focused at the brain stem?

A. Yes.

Q. As far as the phenomenon missed-SIDS is concerned.

A. Yes.

Q. And perhaps also the autonomic mechanisms that control cardiovascular activity?

A. Yes.

Q. I gather you are concerned about that as well as perhaps being something that is the cause of SIDS or missed-SIDS?

A. The centres for respiratory control and the centres for cardiovascular control



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are very close together in the brain stem, so that
is a concern.

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Q. Dealing with Jordan Hines,

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you have told us that the diagnosis of the cause of
death was clearly missed-SIDS and you have no doubt
about that.

6

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A. Yes.

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Q. That is, I take it, because

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all of the pathological findings fit the definition?

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A. That is correct.

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Q. Combined with the periods

12

of apnea clinically?

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A. Yes.

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Q. But you indicated, I

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gather, that you were also interested in the possi-
bility of there being an abnormality of the

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conduction system of the heart.

17

A. Yes.

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Q. That possibility, I gather,

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was raised in your mind because of the indications
of tachycardia?

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A. Yes.

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Q. And I gather the reason

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you were interested in that was not for arriving at

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the diagnosis of the cause of death but in under-

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standing the mechanism of death?

A. Yes, that is correct.

Q. Let me ask you this: As far as the mechanism of death is concerned, I take it that, if the mechanism of death was determined to be some abnormality in the conduction system of the heart itself, that would not change your diagnosis of the cause of death; or would it?

A. It would not change the diagnosis of Sudden Infant Death Syndrome, no.

Q. But I gather an abnormality --

THE COMMISSIONER: Surely, it could, depending on the nature of the defect in the conduction system. If it is one that meant that the heart would not beat, then, surely, that would be the primary cause of death, would it not?

THE WITNESS: The diagnosis would be Sudden Infant Death Syndrome and the mechanism of death would be related to that abnormality, yes.

MR. ROLAND: Q. What we do not know yet is precisely what causes the phenomenon of missed-SIDS or SIDS, and I gather the literature and research that has been done in this area has not yet identified an abnormality in the conduction system of the heart as being something that is



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2 characteristic of missed-SIDS death?

3 A. No, it has not. There
4 are a variety of studies in the past that have
5 suggested some changes and maybe I should just
6 mention them.

7 Initially, James, the cardiologist,
8 had done some studies on the conduction system of
9 the heart in Sudden Infant Death Syndrome and felt
10 that he had seen abnormalities when he looked at
11 the conduction system under the microscope. These
12 studies then were later performed by Dr. Valdes-Dapena
13 and she found that he was in error; that the
14 changes that he had seen in the conduction system
15 were related to normal development in an infant of
16 that age.

17 Subsequent to that, there are
18 very rare case reports of an anatomical abnormality
19 in the conduction system of the heart, and this
20 occurs in very rare situations.

21 Q. We know, I gather, that
22 research is ongoing, obviously, into SIDS and missed-
23 SIDS and that an instance of an abnormality of the
24 conduction system of an infant's heart has not yet
25 been found to be part of the phenomenon we have
described as missed-SIDS, has not been found to have



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been part of it pathologically?

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A. It has not been con-

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firmed pathologically.

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Q. But it is something that

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is worth looking into, if it is found in a child
that exhibits all of the symptoms of missed-SIDS?

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A. Yes.

8

Q. And, in the end, medical

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research may find that it is associated with those
other features?

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A. Yes.

11

Q. So that was something, I

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take it, in the case of Jordan Hines, that parti-
cularly interested you?

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14

A. Yes.

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Q. That is, if you found that

16

there was an abnormality of the conduction system

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of the heart in Jordan Hines, that might broaden

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your understanding of missed-SIDS; that is, bring

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in that phenomenon, in your mind as a researcher,

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as part of the phenomena and, if you did not find

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it, then it would confirm, I gather, in your own

22

mind, your own suspicion that the reason for the

23

tachycardia did not have to do with the abnormality

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of the conduction system of the heart but had to do

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with the abnormalities located at the brain stem?

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A. Yes.

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Q. That was a long question

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and there are two parts to it. Do you agree with
it, generally?

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A. Yes, I do.

7

Q. I gather that it was for

8

those reasons that you were particularly interested
in conducting, or having done, a conduction study
of the heart?

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A. Yes.

11

Q. And a conduction study,

12

I think you have told us, is the only way of
determining if there was some abnormality in the
conduction system of the heart. I gather that is a
very expensive undertaking?

13

14

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A. It is both time consuming
and very expensive, yes.

17

18

Q. Costing somewhere between
\$10,000 and \$20,000?

19

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A. Well, I do not think it
would be that high, but it would be thousands of
dollars anyway.

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Q. Taking, I think you said,

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two months or more to do?

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A. Depending on the amount of time that the individual spent, it could take that long.

Q. How many slides would it involve?

A. For a complete examination, it could require as many as 10,000 slides.

Q. And you have told us that, up until the time of Jordan Hines' death, no such studies had been done in the Hospital but that Dr. Wilson was about to come on staff, and he would be doing them. I gather he does something like two or three a year?

A. Yes, that is what he told me.

Q. And when you prepared the autopsy report on Jordan Hines, you have, at least in our minds and in the minds, we have heard, of some of the cardiologists in the Hospital, created some doubt about whether or not the death of Jordan Hines was due to Sudden Infant Death Syndrome, and you told us that the doubt there, found in your report, had to do with the mechanics of death. That is what you were thinking of; not the diagnosis?



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A. That is right.

Q. Can you tell us, in reflection, having reviewed that report, why you think you put that doubt on the autopsy report in the form of a question mark and so on? What was the reason for doing that in this particular case?

A. I certainly wanted to convince Dr. Wilson that it would be worthwhile to do the conduction system of the heart, to show that it was important in this instance, that it should be done, and suggest to him that there was a possibility that there could be an abnormality in the conduction system.

Q. You have told us that you did not really think there was an abnormality; you thought it was a normal heart.

A. Yes.

Q. And you really wanted a conduction study in order to exclude the possibility of an abnormality in the conduction system of the heart; is that correct?

A. Yes.

Q. That was for the purpose, I take it, as a researcher, to advance your knowledge and the knowledge generally of your peers in this



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particularly interesting case?

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A. Yes, that is correct.

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Q. If you had not been

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interested in doing research in SIDS, would you

6

have raised that possibility at all in your autopsy

7

report, do you think?

8

A. No.

9

Q. So, it was really as a

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researcher that you raised that possibility?

11

A. Yes, it is.

12

Q. That, I gather, was, as

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you have said, put in the autopsy report to really

14

bolster your case with Dr. Wilson, was it not; to

15

convince him that he should do a conduction study

16

of the heart?

A. I think it probably was.

17

Q. And if Dr. Wilson thought

18

that it was simply an ordinary heart, a heart that

19

was not abnormal, he, I gather, would not be parti-

20

cularly interested in doing a conduction study?

A. I do not think so.

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Q. Let us turn to the issue

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of the debate that we had the other day between

23

missed-SIDS and digoxin intoxication as the

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possible cause of death with Jordan Hines.

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First of all, let me ask you
this: How many missed-SIDS kids, generally, or
statistically, die after having missed that oppor-
tunity through a period of apnea?

THE COMMISSIONER: What percentage,
I guess.

MR. ROLAND: Q. What percentage,
yes. What is the percentage, or do you know?

A. The mortality rate is
very high associated with missed-Sudden Infant
Death Syndrome and, in various studies, it varies
from 20 per cent to 100 per cent.

THE COMMISSIONER: We are now
talking about not your interpretation of missed-SIDS
but the general interpretation?

THE WITNESS: Yes, clinical.

THE COMMISSIONER: That is,
somebody who has had an apneic period, and you say
it varies from 20 per cent to...?

THE WITNESS: It varies from 20
per cent to 100 per cent.

THE COMMISSIONER: Sorry, it can't
vary from 20 per cent to 100 per cent.

THE WITNESS: Well, one study
shows 20 per cent, another 40 per cent and another
study shows 100 per cent. So, in terms of three



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separate studies, they have reported this variance.

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MR. ROLAND: Q. Does that

depend, in each study, on whether or not a true
apneic period has been identified and how you define
apnea?

A. A true apneic spell would
have had to be observed or recorded in order for that
diagnosis to be made.

Q. I take it, among other
things, there are varying definitions or degrees of
apneic spells?

A. Yes.

Q. I gather that the difference
in percentage in those studies reflects, to an
extent, the narrowness or the breadth of the
definition of an apneic spell?

A. It might.

Q. In going to the case of
Jordan Hines, I take it, in your examination at
autopsy, you did not find any evidence or facts that
pointed to any other cause of death, apart from SIDS,
and that included digoxin intoxication?

A. Yes.

Q. And you told us that you
could not, in any event, as far as you knew, identify



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a case of digoxin intoxication through a standard
autopsy?

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A. That is right.

5

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Q. How many autopsies have
you done, approximately, in your career?

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A. I suppose around 1,000.

9

10

Q. I gather in, if not all
of those cases, the vast majority of those cases,
you have determined a specific cause of death of
one kind or another in those 1,000 cases?

11

A. Yes.

12

13

Q. I suppose, from time to
time, you have some difficulty fixing on any cause
of death, do you?

14

A. Yes.

15

16

Q. But, for the most part,
you fix on one or other cause of death in an
autopsy?

17

18

A. Fix on a diagnosis.

19

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Q. Fix on a diagnosis, yes.
And, like Jordan Hines, may it be said that it is
possible in any one of those 1,000 cases that that
individual died of digoxin intoxication?

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A. That is true.

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MR. HUNT: I didn't get that last question and answer.

MR. ROLAND: That in any one of those thousand cases there was a possibility of digoxin intoxication as the cause of death?

MR. HUNT: Thank you.

MR. ROLAND: Q. But I think as you said the other day that digoxin possibility isn't something that explains the pathological findings in Jordan Hines?

A. No.

Q. And I take it, likewise, you would not explain the pathological findings you made in those other thousand cases?

A. That's right.

Q. So that if we want to speculate about causes of death, apart from the pathological findings, digoxin intoxication is one, and I gather there are all sorts of other things that you could speculate might have caused the death of this or that individual, apart from any pathological findings?

A. Yes.

MR. ROLAND: Thank you. Those are my questions.

THE COMMISSIONER: Mr. Ortved?



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MR. ORTVED: Thank you, Mr. Commissioner.

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EXAMINATION BY MR. ORTVED:

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Q. Dr. Becker, if I can just pick

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up on Mr. Roland's last questions of you. As I under-

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stand it, dealing with the autopsies that you carry

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on in general at the Hospital, these in the great

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majority of cases are not the sort of cases where you

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are presented with a suspicious death, for instance,

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but the coroner, where for instance there might be

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a toxicant suspected and a toxicology screen suggested

with respect to that toxiant?

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A. No.

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Q. And in fact I gather where

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toxicants are suggested it may be the coroner that would

15

actually propose a certain toxicological screen?

16

A. Yes.

17

Q. But rather in the vast

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majority of your 1,000 plus or minus autopsies, you

19

are doing that autopsy along the lines of what I

20

understand to be a clinical pathological autopsy,

is that right?

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A. Yes.

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Q. And that is with a view to

23

assisting the clinicians in terms of understanding

24

and treating the disease that is presented?

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A. Yes.

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Q. And just on that score, would

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it be fair to say that in every case of those that

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the Commissioner is studying here in which you

6

participated, and there are some other than Jordan

7

Hines, there was pathology there that permitted you

8

a diagnosis as to a cause of death?

9

A. Yes.

10

Q. And it isn't as though in any

11

of the cases with which you were familiar that there

12

were deaths for which there was no obvious pathology?

13

A. That is right.

14

Q. And at the same time you have

15

allowed too, Mr. Roland, that that doesn't rule out

16

digoxin in any of those cases, or for that matter

17

in any case that you have, on which you have conducted

18

an autopsy?

A. That is right.

19

Q. Because you can't see digoxin?

20

A. Yes.

21

Q. Plain and simple.

22

A. Yes.

23

Q. Dealing with the department

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as a whole, to the extent of your own knowledge and

25

the situation of which you are aware, I put it to



1
2 you that up until the result in the Estrella case,
3 about which we will hear from Dr. Mancer, there was
4 nothing insofar as the pathology was concerned to
5 suggest enquiries regarding digoxin, is that fair?

6 A. Not to the best of my
7 knowledge, no.

8 Q. And in fact I suggest to you
9 that dealing with the cases of the group with which
10 we are here concerned with which you were involved,
11 there was nothing exceptional about any of those
12 cases having regard to your experience in general?

13 A. That's right.

14 Q. Insofar as the Department
15 of Pathology is concerned, there was certainly no
16 trends noted in the epidemic period that we are
17 here concerned with.

18 A. Not as far as I know, I wasn't
19 involved in those studies.

20 Q. Dealing with Jordan Hines
21 specifically; you have said that you were not present
22 throughout the gross autopsy?

23 A. That is right.

24 Q. And so you are not able to
25 assist us as to whether or not, or when Dr. Rose
attended at the gross autopsy, you didn't see her
there?



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A. No.

3

Q. Which isn't to say she didn't

4

attend?

5

A. That's correct.

6

Q. You indicated that the heart

7

on the gross autopsy form was pale; do you recall
that finding?

8

A. Yes.

9

Q. Dr. Rose indicated in her

10

evidence that that was a finding that she felt at

11

least was consistent with her theory of myocarditis;

12

would that consistent in your experience?

13

A. Yes, it is consistent.

14

Q. Although I take it it is not

15

necessarily indicative of myocarditis?

16

A. No, not at all.

17

Q. And Dr. Rose - while we are

18

dealing with her, you indicated that you did speak
with her briefly before testifying here?

19

A. Yes.

20

Q. Can you just assist the

21

Commissioner as to what that discussion was about?

22

A. With respect to Jordan Hines

23

she had said she hadn't thought of a diagnosis of
Sudden Infant Death Syndrome at the time that he

24

25



1
2 arrested.

3 Q. Mr. Roland mentioned Dr. Wilson
4 conducting certain heart conduction studies, and
5 he mentioned that two or three of those are done in
6 a year. Are those since Dr. Wilson came to the
7 Hospital in 1981?

8 A. I think they all are, yes.

9 Q. I would like to just deal
10 very briefly with the chronology of events during
11 the week of March 23rd, 1981. In particular the
12 lists that have been filed as Exhibits 197 and 198.

13 As I understand it, on March 24th,
14 the Pathology Department was in receipt of a list,
15 and that particular list has been filed here as
16 Exhibit 197, is that your understanding? I had
17 better get the list so I can show you. Can I see
18 Exhibit 198, please.

19 I will just place these two exhibits
20 before you. Is that correct, that on March 24th,
21 the Pathology Department received the list filed
22 here as Exhibit 197?

23 A. I can't recall at that time
24 what list was prepared, because I wasn't really
25 directly involved. I really can't recall seeing these
forms.



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Q. Let me just take you through a sequence of events and you can tell me whether you - whether they are in accordance with your understanding.

On March 24th the Pathology Department was supplied with a list of cases, is that your understanding?

A. I really wasn't involved in that.

Q. Tell me this. As of March 25th, were you requested to speed up your signing out of any case you had on a list that had been provided to the Department of Pathology, and in particular Jordan Hines?

A. I wasn't aware of a list. My understanding was that all of the cases that had been done in the last week or so were supposed to be signed out as quickly as possible or the last couple of weeks.

THE COMMISSIONER: Signed out means completed?

THE WITNESS: It means completed, yes.

MR. ORTVED: Q. And in particular Jordan Hines for which you were responsible, was signed out or completed on March 25th, 1981?



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A. Yes.

3

Q. Then would it appear to you

4

on your examination of the list filed here as

5

Exhibit 198, that the information - that the list

6

of names contained on Exhibit 197 was transposed

7

onto Exhibit 198 and the results of the autopsy

8

simply summarized on that expanded document, and I

9

direct you to Jordan Hines?

A. I would assume so.

10

Q. So the entry under Jordan Hines

11

"? Crib death bradycardia" would that appear to you

12

as a fair summary of what was contained in your

13

final autopsy report?

A. Yes.

14

Q. And it was suggested to you

15

by Miss Cronk last week, that somehow there was to

16

be an elaboration of list 197 in terms of numbers of

17

patients. Now, I don't know whether you agreed with

18

that or not, but we will hear more about that from

19

Dr. Mancer.

20

Can I suggest to you there is no

21

suggestion that list 197 was to be expanded in terms

22

of names?

A. I really don't know.

23

Q. Certainly insofar as you were

24

25



1
2 concerned, what was your understanding as to how
3 those cases, Jordan Hines being one of them, were to
4 be treated from March 25th onward?

5 A. Well, my understanding was
6 that all of the cases that were being looked at that
7 week were to be treated with confidentiality.

8 Q. And insofar as the coroner is
9 concerned, what was your understanding as to whether
10 he was going to have involvement?

11 A. I assumed he would have involve-
12 ment, probably in association with the Toronto
13 Metropolitan Police.

14 Q. And in fact were there
15 instructions that went around to the Department of
16 Pathology that secrecy was to be maintained in
17 relation to the specific cases?

18 A. Certainly no written instructions
19 to the best of my knowledge, but it was my under-
20 standing that that was so.

21 Q. Was it your understanding that
22 the autopsy report on Jordan Hines was in fact shipped
23 from the Pathology Department to the coroner's office
24 through the police?

25 A. Well, my understanding was that
the reports were all going directly to the ongoing



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police investigation.

Q. Certainly when you are involved in coroners' cases, is it not the coroner that looks after conveying information to those whom he feels require it?

A. Yes.

MR. ORTVED: Thank you. Those are my questions.

THE COMMISSIONER: Thank you, Mr. Ortved. Mr. Brown?

MR. BROWN: No questions, Mr. Commissioner.

THE COMMISSIONER: Mr. Strathy?

MR. STRATHY: Mr. Commissioner, I have just a couple of areas that I want to ask questions in, but I am fairly certain that all of the areas will be covered by my friends at length. I wonder if I might defer, I may have no questions in the result.

THE COMMISSIONER: Yes.

MR. STRATHY: At least I would like to have the opportunity if one or two questions are not covered I might ask them at the end.

THE COMMISSIONER: Yes. Well, this will be I take it at least before Mr. Ortved,



1
2 Mr. Roland or Miss Cronk come back?

3 MR. STRATHY: Yes, sir.

4 THE COMMISSIONER: So they will have
5 an opportunity to attack you.

6 MR. STRATHY: Yes.

7 THE COMMISSIONER: No, no, we will
8 proceed that way. Mr. Hunt?

9 MR. HUNT: Thank you, Mr. Commissioner,
10 just briefly.

11 CROSS-EXAMINATION BY MR. HUNT:

12 Q. Dr. Becker, you indicated that
13 there were a number of pathologists who do cases for
14 the coroner.

15 A. Yes.

16 Q. Do I take it from that that
17 not all of the pathologists at the Hospital do
18 coroners' cases?

19 A. Yes, I think that is correct.

20 Q. And would it be fair to say
21 that there is a list, or a restricted number of
22 pathologists that the coroner agrees or will have
23 cases assigned to them?

24 A. Yes, it depends somewhat upon
25 the competition of the department.

Q. From time to time?



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A. Yes, their availability.

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Q. Is there a category of people there at least in terms of experience, or years, that are not assigned coroners' cases?

6

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A. There are some that are doing primarily research, or primarily teaching, yes, that are not doing coroners' cases.

9

10

Q. What about in terms of years of experience, does that enter into the selection of pathologists to do coroners' cases?

11

12

A. I'm not so sure it does necessarily.

13

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Q. With respect to Jordan Hines and the questions that you were just asked by my friend Mr. Ortved; am I correct that at least up until March the 24th when the police investigation began in earnest with respect to a number of babies, that that matter was something to which no secrecy or confidentiality applied?

19

A. That is right.

20

21

22

Q. So that anyone who wished information up until that point in time could have sought you out and discussed the matter with you?

23

24

25

A. Yes.

Q. Just so that I can be clear



1
2 on the aspect of secondary cause, or secondary
3 diagnosis, that my friend Mr. Roland discussed with
4 you. He proposed the example of a baby with a gun
5 shot wound in which there was evidence of prior
6 apneic periods suggestive of SIDS. You indicated
7 that in those circumstances SIDS would be the primary
8 SIDS might not be the primary cause, but would be the
9 secondary cause. Why I find that a little confusing
10 is, surely in a case as blantant as a gun shot wound
11 with the constructive tissue damage to the brain,
12 there would really be no question of any secondary
cause, would that be fair?

13 A. Yes, perhaps I can explain.

14 Q. Yes, if you would please.

15 A. I think in that situation I
16 would have two diagnosis. One is the gun shot
17 through the head; and two, would be a diagnosis of
18 missed-Sudden Infant Death Syndrome (clinical) with
the pathological findings.

19 Q. There would be no suggestion
20 in your diagnosis that the missed-Sudden Infant
21 Death Syndrome had anything to do with the direct
22 cause of death?

23 A. It would depend to a certain
24 degree I guess on where the bullet wound was. I
25



1
2 presume you are talking about something very
3 devastating in that case?

4 Q. Yes, that is what I assumed
5 the example was designed to show.

6 A. Yes.

7 Q. Now with respect then to
8 digoxin; you indicated that your standard autopsy
9 does not involve any testing for that, and that it
10 would not, digoxin intoxication would not be revealed
11 to you as a result of that type of an autopsy?

12 A. Yes.

13 Q. And do I take it from that
14 then that your opinion based as it is strictly on
15 the pathological findings, really would not change
16 as a result of any information that you may be given
17 with respect to digoxin?

18 A. That is correct, except it
19 could be an additional diagnosis.

20 THE COMMISSIONER: An additional what,
21 diagnosis?

22 THE WITNESS: An additional diagnosis
23 if there was some data available on that that was
24 verified.

25 MR. HUNT: Q. You were asked by
Commission Counsel, Miss Cronk, last week, whether or



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not the fact that digoxin, and/or digoxin-like
substance was found in tissues in Jordan Hines'
body would lessen your confidence in your diagnosis.

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I take it from that, that insofar as, and you indicated that by the way that it wouldn't lessen your confidence as I understood it, do I take it from that that no matter what the information that the Commission receives in the weeks to come with respect to digoxin is concerned that that won't have any effect on your opinion as to the cause of death?

A. No. It would be one of the possibilities. It wouldn't change the diagnosis though in terms of Sudden Infant Death, just like it wouldn't change the diagnosis say, of congenital heart disease, you would still have that diagnosis, plus another factor that has to be taken into consideration and that factor would have to be taken into consideration with the known mortality that is associated with apnea in the situation.

Q. All right. When you say that, are you speaking of the mechanism of death then as opposed to the diagnosis?

A. The diagnosis then would not - I'm not sure exactly what you mean.

Q. Well, let me ask you this. It doesn't seem to me possible to have a diagnosis of SIDS or missed-SIDS with digoxin being a mechanism of death.



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A. Yes. No, I don't quite see that. The diagnosis would be Sudden Infant Death or of the sub type missed-Sudden Infant Death Syndrome. If it was found that the digoxin levels were in fact at toxic levels by the pharmacologist.

Q. Yes.

A. Then that would have to be taken into consideration as a factor, yes.

Q. Well, certainly, and I accept that, wouldn't it also cause you to have to re-assess your opinion with respect to the cause of death. Not with respect to the findings that were apparent to you on the autopsy but with respect to your conclusion as to the cause of death?

A. Yes, it would have to be taken into consideration, certainly.

Q. And in fact it could result to your changing your opinion with respect to the cause of death?

A. In terms of the mechanism of death but not the diagnosis.

Q. The mechanism of death but not the diagnosis?

A. Yes.

THE COMMISSIONER: Well, the mechanism



1
2 of death and the diagnosis I can understand, that is,
3 if you take the extreme example the child has a
4 serious congestive heart failure but dies from a
5 gunshot wound, people have said, surely the cause
6 of death is the gunshot wound. The diagnosis may
7 be heart failure.

THE WITNESS: Yes, right.

8 THE COMMISSIONER: But the cause of
9 death is the gunshot wound, is it not?

10 THE WITNESS: Yes, yes.

11 THE COMMISSIONER: I mean, that's
12 what it would be at law any way?

13 THE WITNESS: Yes.

14 THE COMMISSIONER: Whether it would
15 be in death.

16 THE WITNESS: Yes.

17 THE COMMISSIONER: Well then in
18 this case if, if - let's say only if.

19 THE WITNESS: Yes.

20 THE COMMISSIONER: A child had the
21 symptoms of missed-SIDS that is, periods of apnea
22 and all of these various defects that you have found
23 but nevertheless was given a massive overdose of
24 digoxin.

25 THE WITNESS: Yes.



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THE COMMISSIONER: Surely the cause of death is the overdose of digoxin?

THE WITNESS: Yes, I would agree with that. In that case there would be two diagnoses but one cause of death, yes.

THE COMMISSIONER: That's right.

MR. HUNT: Q. So that insofar as the cause of death is concerned you would be quite prepared to change your opinion based on other evidence that may or may not be presented?

A. In terms of cause of death rather than diagnosis.

Q. In terms of cause of death?

A. Yes; a pathology I couldn't say in terms of.

MR. HUNT: Okay, thank you.

THE COMMISSIONER: Yes, all right. Thank you, Mr. Hunt. Mr. Young.

MR. YOUNG: Mr. Commissioner, I have discussed this with Mr. Tobias and I would tentatively request that Mr. Tobias and/or other counsel go before us. I suspect that they will ask all of our questions, I am hopeful that they will. We don't have too many at this stage but we think it might be more beneficial to allow counsel with more interest to proceed us.



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2 THE COMMISSIONER: This is becoming
3 a contagious disease, we will have to have it examined
4 carefully. Yes, all right.

5 MR. YOUNG: Mr. Commissioner, while
6 I am standing though. Exhibit 197 has been referred
7 to today and indeed it was entered as an exhibit last
8 Thursday. My understanding is that subject to proof
9 this was to be a document that we were to accept as
10 being prepared by the Metropolitan Toronto Police
11 and forwarded to the Department of Pathology and the
12 Hospital. I have made some enquiries and while I do
13 understand that the police have some input into pre-
14 paring this document and in fact an officer wrote out
15 this very sheet, the list was prepared in consultation
16 with a number of cardiologists and with I believe Miss
17 Haffey of the Hospital.

18 THE COMMISSIONER: Miss...

19 MR. YOUNG: Miss Haffey, and Mr.
20 Scott may be able to help me with this, but I believe
21 she is in the Records Department of the Hospital. I
22 just thought that I would point that out because it
23 probably will be referred to again and it should be
24 clear.

25 THE COMMISSIONER: Well, the police
obviously couldn't have produced this alone.



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MR. YOUNG: No, no.

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THE COMMISSIONER: They would have
to have the information from someone.

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MR. YOUNG: Well, that's right. As
I say though I understand that both the Records
Department and the Cardiology Department did play a
role and the exact nature and extent of each party's
involvement will be proven later.

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THE COMMISSIONER: All right. Well
now, Miss Symes, are you going to seek to defer to
someone else too?

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MS. SYMES: No.

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THE COMMISSIONER: No, all right.

13

CROSS-EXAMINATION BY MS. SYMES:

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Q. Dr. Becker, you had said
in answer to a question that Mr. Roland put to you
that the cause of SIDS is still a topic for research
and, that is, there are I gather many theories for
what causes SIDS but there are no definite answers,
is that right?

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A. Yes.

21

22

Q. And that there is research
going on all over the world with respect to what is
the cause?

23

24

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A. Yes.



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2 Q. And I gather that although
3 in 1969 the definition of SIDS was made and there
4 have been further conferences since that there is
5 still this tremendous misunderstanding and ignorance
6 about SIDS?

7 A. Yes.

8 Q. And I gather that it must
9 be extremely difficult to explain to parents or to
10 nurses who have cared for what looks like an obviously
11 healthy normal baby why that baby has died?

12 A. Yes.

13 Q. Now, I gather that one of
14 things that you do in your work with the SIDS Foundation
15 is try and allay the fears that they have done
16 something wrong?

17 A. Yes, that's correct.

18 Q. And you have mentioned
19 things such as suffocation?

20 A. Yes.

21 Q. For example, as recently
22 as 1983 have you been involved in a coroner's inquest
23 in which a SIDS or a missed-SIDS was the question of
24 a suffocation on a water bed?

25 A. Yes.

Q. And that kind of ignorance or



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misunderstanding still exists today?

8

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A. Yes, it does.

4

Q. Now, you had said that

5

SIDS that occur at home or in other hospitals in

6

Metropolitan Toronto become coroner's cases?

7

A. Yes.

8

Q. Is it your understanding

9

that all SIDS deaths or missed-SIDS deaths becomes
coroner's cases?

10

A. Those that die outside of

11

the hospital do but there seems to be some variability

12

in those that die within the hospital.

13

Q. Okay. But if they die outside

14

the Hospital for Sick Children, whether it be at home

15

or in other hospitals, do they all become coroner's
cases?

16

A. I assume so. I don't know

17

for sure.

18

Q. And when you do an autopsy

19

for the coroner in the question of SIDS or missed-

20

SIDS does the autopsy that you do differ in any way
from the one that you did in Jordan Hines?

21

A. No.

22

Q. They are identical?

23

A. Yes.

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Q. So, in other words, if this

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case had been reported to the coroner and the coroner

4

had requested an autopsy to be done would there have

5

been any difference to Exhibit 103B and what we see

6

today?

7

A. No, there would not.

8

Q. Now, the phenomenon of

9

SIDS, was it at one time a belief that there was one
cause of death for SIDS?

10

A. Yes.

11

Q. What is the current belief

12

now. I gather they are just belief or in the research
stage?

13

A. Well, I think when people

14

try to talk about causes they would say that the two-

15

thirds are probably related to apnea and one-third

16

are related to a variety of other more minor factors.

17

Q. All right. Now, in the apnea

18

portion of it, is that where Jordan Hines fits?

19

A. Yes.

20

Q. Could you just briefly tell

21

us what the one-third other categories are?

22

A. Well, they would include such

23

things are the rare conduction defect that could be

24

found on pathological examination. Botulinum toxin

25

26



1
2 has been described ---

10 3 Q. I'm sorry, I don't know
4 what that is.

5 A. It is a toxin that is
6 produced by bacteria in the gut and some people have
7 suggested that this may be a factor in Sudden Infant
8 Death Syndrome.

9 Q. Is that something that would
10 be found on autopsy in a microscopic examine?

11 A. No, it requires special
12 studies to be done.

13 Q. Were those done in this
14 case?

15 A. Looking for botulinum
16 toxin?

17 Q. Yes.

18 A. No. Other things that
19 have been mentioned are thyroid hormone abnormalities,
20 glucose abnormalities, a variety of other factors
21 have been suggested. But in terms of what we can see
22 at pathology, the main other lesions are the conduction
23 defects in the heart that we can see under the
24 microscope.

25 Q. Now, you had said then with
respect to the 66-2/3 per cent which are apnea that



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there could be two things occurring?

3

A. Yes.

4

Q. In the brain stem. One
is scarring affecting the respiratory centre?

5

A. Yes.

6

7

Q. And one is scarring affecting
the cardiac centre, is that it?

8

9

A. Well, they are almost one
and the same thing in terms of their location.

10

11

Q. I am sorry, not being the
doctor, could you tell us exactly how close they are?

12

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A. Well, the dorsal nucleus
of the vagus sends fibres to both the lung and the
heart. So, they are essentially the same nucleus but
perhaps components of that nucleus are more respiratory
or more vascular oriented. That isn't known.

16

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Q. Could you explain to us how
this scarring interferes, because that's what you have
said, isn't it?

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A. Yes. To explain how it
interferes I really would have to explain how respiration
works and that isn't a simple matter. But essentially
there are inspiratory centres and expiratory centres
in the brain stem and these send impulses to other
nuclei and they send impulses down to the cells that



1
2 control the upper respiratory system, like the tongue
3 and like the pharynx and they also send impulses down
4 lower to the diaphragm and to the intercostal muscles,
5 intercostal muscles being the ones that supply the
6 muscles that move the chest.

12
7 So that these impulses from these
8 respiratory centres in the brain stem are co-ordinating
9 this movement so that the diaphragm and the inter-
10 costal muscles contract at the same time that the
11 muscles in the upper part of the respiratory system
12 relax and if there is any asynchrony in the system
13 then there is going to be, there could very well
14 be apnea. So that the gliosis interferes with this
15 anatomy.

16 Q. The what?

17 A. The scarring in the brain
18 stem interferes with this anatomy and therefore
19 interferes with the electrical conduction to these
20 other centres in the nervous system.

21 Q. In some way would it be to
22 deflect their normal transmission of conduction?

23 A. To alter it in some way,
24 yes.

25 Q. Okay. Now, that is with
respect to respiratory. Is it the theory that the



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scarring may do the same thing to the cardiac centre?

A. It may. It is suggested for example in the controversy associated with the Q-T interval that the abnormality in that interval is really due to imbalance between the so-called sympathetic and parasympathetic innervation to the heart. In other words, an imbalance which is centred in the brain again so that there may very well be a central instability which also effects the cardiovascular system.

Q. Now, I want to take you to the detailed examination that you did in Exhibit 103B, because we have just referred to the summary.

Mr. Commissioner, should I take a break at this particular time?

THE COMMISSIONER: Yes, we will take 20 minutes now then if this is a convenient time.

MS. SYMES: Yes, I am now going to go to the detailed autopsy, thank you.

THE COMMISSIONER: Yes, all right.
---Short recess.



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----- on resuming.

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THE COMMISSIONER: Yes, Miss

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Symes.

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MS. SYMES: Q. Dr. Becker,

6

I had asked you if you would refer to the final
autopsy report, which I understand is 103A, of Jordan
Hines.

8

I believe Miss Cronk and other

9

counsel only referred you to the first two pages

10

of that, which is the final autopsy report.

11

I would like to turn to the

12

detailed autopsy report, which begins at page 1 - I

13

do not think all of the pages are consecutively

14

numbered, but maybe I'm wrong.

15

First of all, is that detailed

16

autopsy report the protocol that you told Mr. Roland

17

A. Yes, it is.

18

Q. Is that the same protocol

19

that you would use in a Coroner's case?

20

A. Essentially it is the

21

same but the form is different.

22

Q. You have testified before

23

with respect to the findings on Jordan Hines'

24

autopsy. I would like to turn to the detailed

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autopsy report and, first of all, to page 1 of that



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detailed autopsy report.

Are you with me?

A. Yes.

Q. The first statement is:

"The body is that of a well-nourished,
healthy looking male infant."

Is that consistent with other
SIDS and missed-SIDS?

A. Yes.

Q. You had said in the summary
that there was evidence of scarring on the brain
tissue. Could you point where that is in the detailed
autopsy report.

A. It is under "central
nervous system".

Q. Page...?

A. Page 11, or 12.

Q. It is not numbered, is it?

A. It is unnumbered.

Q. It is the unnumbered
A-68-81 on the top?

A. Yes.

Q. That follows page 10?

A. Yes. It is the section
shown after the "cytosis of the dorsal vagal
nuclei".



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Q. Dr. Becker, is there scarring and scarring? That is - not to sound silly, but in autopsies that you have looked at in SIDS and missed-SIDS, is there a gradation of amount of scarring in the brain stem that you have observed over the years that you have been doing these autopsies?

A. There is a gradation but, more important, is the site of the scar. Because there is such precise localization in the brain stem, it is important to know where the scarring actually is in the brain stem, yes.

Q. In this particular case, Jordan Hines, first of all, let us take the easier one - the amount of scarring. How would you characterize it, in quantity?

A. There is a significant amount.

Q. And the location?

A. In the brain stem.

Q. Is that near, then, to the centre that affects respiration and the cardiac centre?

A. Yes.

Q. With that amount of



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scarring that was observed in that centre, is that
consistent with continued life?

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A. I would think so, yes.

5

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Q. It is possible that a baby
with that amount of scarring in that part of the
brain stem could have continued to live?

7

A. I would think so.

8

9

Q. In terms of the number of
SIDS or missed-SIDS that you did, was it low,
medium or high in quantity?

10

11

A. Medium to high.

12

13

Q. And in terms of the
location as to, essentially, dangerousness or lethality,
was it low, medium or high?

14

A. It is high.

15

16

Q. So, the scarring of the
brain tissue is both medium to high in quantity and
high in location?

17

18

A. Yes.

19

Q. The second that you have
talked about is extramedullary hematopoiesis.

20

A. Hematopoiesis.

21

22

Q. I gather that is on page
12 of your report.

23

A. Yes.

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Q. Please, would you tell me
what that phrase means.

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A. It means that blood is
being produced outside of its normal location; that
is, outside of the bone marrow. Therefore, the
presence of the extramedullary hematopoiesis in the
thymus, the spleen and the liver is very significant.

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Q. You just said then that
it is located in three separate places?

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A. Yes.
Q. Is that unusual, that you
would have three separate occurrences of this
phenomenon?

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A. It is a very marked degree
of that phenomenon.

Q. Which would make it more
consistent then with SIDS or missed-SIDS?

A. It would make it consistent
with it, yes.

Q. In terms of all of the
SIDS autopsies that you have done, is it low, medium
or high in terms of its occurrence?

A. High, for the extramedullary
hematopoiesis.

Q. The third thing, I gather,



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was presence of brown fat?

3

A. Yes.

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Q. First of all, could you

5

explain to me why the fat would be brown?

6

A. When there is decreased

7

oxygenation of tissues, it appears that the brown fat

8

either persists or occurs. We do now know whether

9

it persists or it actually reverts to that situation

10

Q. I'm sorry, Dr. Becker,

11

is a baby born with brown fat that gradually turns

12

white?

13

A. Yes.

14

Q. So, it is not clear as to

15

whether or not that process does not take place or

16

whether or not it is reversed; that is, what has

become white, starts to become brown again?

17

A. There is a failure in the

18

maturation of fat, according to the normal sequence.

19

Q. So, it fails to go from

20

brown to white?

21

A. Yes.

22

Q. In Jordan Hines, obviously,

23

you have said that there was brown fat. Where does

24

that appear in the detailed autopsy? Perhaps I should

25



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help you. Is it also on page 12, under "liver"?

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4

A. It shows -- yes, around the adrenal glands. The adrenal section shows persistence of brown fat.

5

6

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Q. Dr. Becker, in Jordan Hines, how much brown fat was there? Low, medium or high?

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A. Somewhere about medium.
THE COMMISSIONER: What does medium mean? In a normal child there would not be any?

12

13

14

THE WITNESS: In a normal child, there would not be any, and I think the essence of the question is: Can I grade it at all, and I am trying to grade it approximately.

15

16

17

MS. SYMES: Q. I am trying to grade it, Dr. Becker, in terms of all the SIDS autopsies you have done, SIDS or missed-SIDS --

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19

20

A. That is approximate.

Q. I'm trying to fit Jordan Hines into your degree of certainty as to whether or not it was a SIDS or missed-SIDS.

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A. Yes.

Q. The fourth thing, I gather, is the thickening of the pulmonary arterioles?



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A. Arterioles, yes.

3

Q. And where is that found?

4

A. I would put that in the
middle as well, medium.

5

6

Q. Could you explain why
this phenomenon would occur?

7

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A. It is felt that the
persistence of hypoxia, particularly of a chronic
nature, may be sufficient to cause these vessels
to proliferate and become thicker; in other words,
the cells in those vessels proliferate and become
thicker.

12

13

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15

Q. So, Dr. Becker, on the
four-principle founded categories for SIDS or missed-
SIDS, you have placed Jordan Hines at least medium
to high in all of the four indicia?

16

A. Yes.

17

18

Q. In addition, you told us
that one sort of rule of thumb was the presence of
petechiae.

19

20

A. Yes.

21

Q. In this particular child,
were there many of them -- or bad?

22

A. Mild to moderate.

23

24

Q. Dr. Becker, I would like
to ask you generally about the Hines child in terms

25



1
2 of the clinical observations to see whether or not
3 they are consistent with SIDS and missed-SIDS, and I
4 want to take you to the chart of this child, the
5 clinical observations prior to death.

6 I gather, from the chart, and I
7 am referring to Exhibit 103, that this child had
8 apneic spells, first of all, at home on March 5, 1981.
9 The date of death was the early morning hours of
10 March 8th.

11 So, on March 5, I gather that
12 there were blue spells, or apneic spells, at home
13 in which the mother was able to revive the child by
14 shaking the child.

15 A. Yes, that is my under-
16 standing.

17 Q. I gather then, the child
18 was taken to North York General Hospital on March 5
19 and that further apneic spells were observed on
20 March 5, 1981.

21 A. Yes.

22 Q. I gather then that North
23 York was able to rouse the child out of the apneic
24 spells.

25 A. Yes.

Q. March 6, the child was at



1
2 The Hospital for Sick Children and, at page 66 of the
3 progress notes, there is noted that this baby
4 had apnea as well, apnea spells.

5 A. Yes.

6 Q. It is approximately half-way
7 down the page on page 66.

8 A. Yes.

9 Q. Apnea spells with brady-
10 cardia.

11 On page 81, which is the nursing
12 flowsheet pattern, the nurse has charted that there
13 are apnea spells with tachy/bradycardia and that
14 the patient is hard to arouse, when he came in.

15 There is hard evidence then that
16 this child apnea spells on a number of occasions on
17 the 5th and was still having them on March 6, 1981.

18 A. Yes.

19 Q. We know, on page 67 of the
20 chart, that the child had an upper respiratory in-
21 fection and had a nasal discharge.

22 Is that consistent with SIDS and
23 missed-SIDS?

24 A. Yes, it is rather character-
25 istic.

Q. That is not to say that is



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the cause of death but just they tend to go together?

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A. Yes. The suggestion is

that the respiratory system is unstable and that
a minor infection and perhaps even a minor sleep
irregularity may be enough to tip the balance and
produce apnea.

Q. Dr. Becker, might the
onset of the mild infection cause the variation from
bradycardia to tachycardia?

A. I am not a clinician. I
would not be able to answer that.

Q. On page 76, again of the
chart, which are the doctor's orders, we see that
this child was placed on both an apnea and a cardiac
monitor.

What does the apnea monitor
measure, Dr. Becker?

A. I don't know the type of
apnea monitor that was used, so I cannot say.

Q. In general, what do
apnea monitors measure?

A. In general, they measure
movement of the chest.

Q. Just generally, how do they
work? I gather an alarm sounds? Does the alarm



1

2

sound if the chest fails to move after a certain
period?

3

4

A. Yes.

5

Q. Just in a crude sense, is
that what an apnea monitor is?

6

7

A. Yes, that is my under-
standing.

8

9

Q. So, it essentially measures
failure to breathe, does it?

10

11

A. Failure of chest movement,
that is all.

12

13

14

Q. The nursing notes for that evening,
at page 68 of the chart, are that first the cardiac
monitor sounded and then the apnea monitor sounded
some seconds later, at 4:10 in the morning.

15

16

Dr. Becker, is there any signi-
ficance that the cardiac monitor went off first?

17

18

A. You would really have to
speak to a cardiologist. That is not my area of
expertise.

19

20

21

Q. We know that immediately
upon the two monitors going off, CPR was started
immediately but that the baby did not respond.

22

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A. Yes.

Q. Miss Cronk, in her re-
examination of Dr. Rowe, asked a series of questions,



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and my questions will flow out of them.

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When Baby Hines was at home and had an apnea or blue spell, the mother was able to reverse that simply by shaking the baby and the baby responded. That happens, then, with apnea spells?

A. Yes, that is my understanding.

Q. And, similarly, the apnea spells at North York General Hospital and The Hospital for Sick Children on March 6th, although there appears to be something about difficulty of arousing, what is the way of arousing a child who is experiencing apnea spells?

A. It would vary from stimulation to complete cardiopulmonary resuscitation.

Q. How do you mean various kinds of stimulation?

A. Shaking, that would be one of the types of stimulation.

Q. Any other types?

A. I am sure there are. Irritation of the nose and nasal tube, or a variety of other things.

Q. But we know that at 4:10 on March 8, this baby was shook; in fact, CPR was commenced and a whole host of resuscitation efforts



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made and, yet, the baby did not respond.

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A. Yes.

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Q. Dr. Becker, in terms of
SIDS, is that unusual?

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A. No, it is not.

6

Q. Could you explain.

7

8

A. The suggestion is that
the ability to resuscitate a child with apnea is
variable. It may be just a simple shaking or
stimulation of some sort, or it may require full
resuscitation in order to bring these babies around.
So that the range of things that could be effective
is wide.

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Q. Dr. Becker, can I ask you
if, on the far end of that scale, is there the
possibility that no matter what you do, what resusci-
tation efforts are used on a SIDS child, it may not
revive?

18

A. Yes.

19

Q. Has that been reported in
the literature?

20

21

A. I think it probably has,
yes.

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Q. Dr. Becker, from the time
that a baby, such as Jordan Hines, starts having these



1
2 apnea spells - and I guess it is clear, you mentioned
3 to Mr. Roland this morning that there may be different
4 measurements or different degrees of apnea spells, and
5 I guess it is pretty clear that Jordan Hines had
6 clear apnea spells before March 8?

7 A. Yes, that is my under-
8 standing.

9 Q. Is there any literature
10 about a critical period in the life of such a child
11 surrounding the apnea spells?

12 A. I do not quite understand
13 the question.

14 Q. After a child, such as
15 Jordan Hines, has had these kinds of apnea spells,
16 is he at great risk of being a death?

17 A. Once he has had an apnea
18 spell, yes.

19 Q. You have mentioned that
20 there are studies that say 20 per cent, 40 per cent
21 to 100 per cent risk; is that correct?

22 A. Yes.

23 Q. Is there a period, in
24 terms of hours or days, surrounding those apnea
25 spells in which the baby is at greatest risk?

THE COMMISSIONER: You mean after?



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MS. SYMES: Mr. Commissioner, the last one is also an apnea spell. It is the last apnea spell.

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THE COMMISSIONER: I just did not understand the question.

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Did you mean that, once he has had an apnea spell, is there a particular --

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MS. SYMES: Critical period of time.

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THE COMMISSIONER: After that.

MS. SYMES: After that.

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A. It is in the immediate time after the initial apnea spell that that is going to be quite variable, too, and the child is going to be susceptible for a number of months until he essentially grows out of this critical period when the Sudden Infant Death Syndrome occurs.

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Q. Would you have a child such as Jordan Hines, who has a number of apnea spells in a two-day period - that is, March 5 and 6 - does the fact that the child has had a number of apnea spells increase his risk of death?

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A. Yes.

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Q. Markedly?

A. Yes. There is the study by Dr. Naeye and looking at apneic children under the age of one month and found that the risk of a single apneic spell was 5 per cent of death. The risk for death after more than one episode of apnea was 44 per cent. Those risks doubled if there was any history of infection in the preceding week, weeks.

Q. Just looking at Jordan Hines then, we know that he had more than one apnea spell, so he is already at 44 per cent risk of death?

A. Yes.

Q. The fact that he had an upper respiratory infection, that that then doubles it to 88 per cent risk of death?

A. Yes.

Q. So, Dr. Becker, although Jordan Hines was put on an apnea monitor, I gather that the value of that apnea monitor may only be to warn the surrounding people, be it the parents or nurses, that the child is having an onset of another apnea spell, is that fair to say?

A. Yes.

THE COMMISSIONER: I don't understand the only part.



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MS. SYMES: I am going to come to the second part.

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THE COMMISSIONER: All right. What was in the first part when he said yes, that is its only use I take it is the one, is that what you understand, Doctor?

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THE WITNESS: That is my understanding, yes. There are varieties, I think there are some varieties that actually produce stimulation but the majority are only one.

11

12

MS. SYMES: Q. I see. So this one appears to have an alarm on it?

13

A. Yes.

14

Q. That is the warning kind?

15

A. I would assume so.

16

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Q. And in these kinds of cases such as Jordan Hines, there really may be nothing that anyone could do for Jordan Hines that would have been effective to reverse that terminal apnea?

19

A. Yes.

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Q. In other words, whether the child had been at home, or in the most sophisticated of controlled environments, such as he was at the Hospital for Sick Children, there was nothing that anyone could have done to have interrupted or



1
2 prevented this death?

3 A. That is my understanding.

4 Q. Now, you were asked about the
5 double diagnosis; that is that of digoxin intoxication
6 with SIDS or missed-SIDS symptom?

7 A. Yes.

8 Q. Dr. Becker, have you done any
9 studies to determine whether there are any pathological
10 observations in a body if there is digoxin intoxica-
11 tion, for toxicity?

12 A. I have done no studies
13 myself and I am not aware of any that have been
14 done.

15 Q. That was going to be my
16 second question. Do you know of any studies in the
17 literature that show what pathological findings
18 there are?

19 A. I know of none.

20 Q. And is the conclusion then
21 from that that you would not know what to look for,
22 other than a drug screen, drug test on postmortem
23 blood and tissue? You as a pathologist, would
24 there be anything that you would know to look at
25 in the body, to look for digoxin intoxication?

A. No.



G4 1
2 Q. I gather though that there may
3 be things to look at, you just don't know what they
4 are?

5 A. I think it is more than that,
6 I don't think anyone knows what they are. My under-
7 standing is there are no findings associated with
8 digoxin, period.

9 Q. I gather though in this
10 particular baby, Baby Jordan Hines, you found
11 nothing in the autopsy results, other than the
12 factors that were consistent with SIDS or missed-SIDS?

13 A. Yes. There is one other
14 factor which is of some interest, the child had a
15 subependymal cyst, which means that in the brain
16 there was a small area of necrosis or damage so
17 that there is, the site of the brain has had a
18 small essentially stroke, and this has occurred at
19 a very typical location and indicates the baby was
20 not normal at or around birth. Either the cyst
21 is caused by lack of oxygen or is caused by some
22 infection at that time. The reason I would be able to
23 localize it to that period of time is this particular
24 region of the brain is associated with changes that
25 are related to the gestational period, and damage
at that site occurs only in the period of time



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immediately before or shortly after birth.

Q. Dr. Becker, could you point on the detailed autopsy to the finding of this cyst?

A. It is actually on the pathological diagnosis, subependymal cyst, small right.

Q. Is it also found on page 11 of the - it is unnumbered page, but it follows 10 and it is before 12.

A. Yes, it is the same.

Q. This cyst, is it found in other SIDS and missed-SIDS children?

A. It may be found in other children with missed-SIDS and SIDS, yes.

Q. Is it in any way the cause or linkage to the cause of death?

A. No. The only way it would be linked is in the sense it indicates that the child was not entirely normal at birth.

Q. Does its location have any effect on the way that a child would develop with such a cyst?

A. No, not as far as I know.

MS. SYMES: Those are all my questions.

Thank you.

THE COMMISSIONER: Thank you, Ms. Symes.



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What would happen to a cyst like that in the ordinary course, would it just go away?

THE WITNESS: It wouldn't go away, but it would shrink down into a very tiny scar.

THE COMMISSIONER: It would not affect the brain, the development of the brain?

THE WITNESS: No, not as far as I know.

THE COMMISSIONER: Is it quite common?

THE WITNESS: Pardon?

THE COMMISSIONER: Is it quite common?

THE WITNESS: It is common in those babies that have some difficulty at the time of birth.

THE COMMISSIONER: Yes, all right, thank you.

Miss Wharton, is she here?

MS. WHARTON: No questions.

THE COMMISSIONER: Miss Jackman?

MS. JACKMAN: No questions.

THE COMMISSIONER: Mr. Olah?

MR. OLAH: I have discussed this matter with Mr. Tobias, and with your consent, he is going to precede me and in that event I may have



1
2 no questions after that.

3 THE COMMISSIONER: You are being
4 very helpful, Mr. Tobias. He may not have the
5 same interest that you have, so that is the problem.
6 However, you proceed, everybody seems to be deferring
7 to you, so you proceed, but I don't know whether you
8 are going to like what happens after you finish. If
9 you find out after that that you have to come back,
10 just ask.

11 MR. TOBIAS: That was precisely what
12 I was going to suggest, sir.

13 CROSS-EXAMINATION BY MR. TOBIAS:

14 Q. Dr. Becker, it may assist
15 me considerably if I can understand, or spend a
16 few minutes on a brief overview of your evidence.

17 I understand from the evidence that
18 you gave on Thursday, and from some of the evidence
19 which you gave directly to Mr. Hunt this morning,
20 that your view is that as a pathologist your
21 responsibility is to make a finding and an autopsy
22 report of what the pathological findings are which
23 might explain the cause of death.

24 A. Yes.

25 Q. Is that correct?

A. Yes.



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Q. And generally speaking you are restricting yourself in the preparation of that report to the very narrow pathological point of view?

A. To the pathological point of view.

Q. All right, I withdraw the words "very narrow", you are restricting yourself to the pathological point of view?

A. Yes.

Q. If there is no morphology for it, if you can't see it under a microscope, or on one of your standard tests that would be done on a routine autopsy, then it is not something you would take into consideration.

A. It is something I take into consideration, yes.

Q. Well, Doctor, if the precise thing we are talking about is something that you have no reason to suspect and would therefore not test for it, and it would not be explored as a matter of your routine autopsy, how could you take it into consideration?

A. Well there are always other possibilities that one is not looking at, and it would be in the category of another possibility.



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Q. All right. Have you not told us though that basically when you are preparing your autopsy and doing your studies, that you only rely on the clinical diagnosis to the extent that that clinical diagnosis is consistent with the pathological findings?

A. Yes.

Q. So that if there is something in the clinical history, or if there is another factor, such as the gun shot theory, or the poison theory, that you would not consider, then that does not weigh in your final report, am I correct?

A. I don't quite understand what you mean. If there a situation clinically of a viral myocarditis, then we will do additional studies to try and show what particular virus was involved. So in that sense we are using other studies besides solely the pathology to arrive at a diagnosis. It depends on what the indications are.

Q. What I am suggesting is this: if there is a clinical marker, or a clinical symptom which is not brought to your attention in the medical chart, and if it is not brought to your attention by the clinicians, then you would not in making your report ordinarily consider that factor.



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Am I correct?

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A. You mean if that factor had

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not been seen, for example?

5

Q. That is correct.

6

A. Seen in some way?

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Q. Well, we won't say not seen,

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we will just say not brought to your attention.

9

A. Well, not necessarily. There

10

are other ways, it doesn't matter particularly

11

whether it is just the clinician that brought it

12

to my attention. We do have the chart available and

13

we try to look at that chart in terms, for direction
of how the investigation should proceed.

14

Q. We have heard from Dr. Rowe

15

that in the case of Jordan Hines specifically, the

16

clinical course of that child and the anatomical

17

condition of that child were consistent with digoxin

18

toxicity. In other words, some of the symptoms that

19

he exhibited in the Hospital were consistent with

20

digoxin toxicity. Would you have been aware of that

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A. No.

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Q. Were you in fact aware of it

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before you commenced the autopsy on Jordan Hines?

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A. No.

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Q. Was it brought to your attention by any of the clinicians prior to your commencing the autopsy on Jordan Hines?

A. No, it was not.

Q. So can I take it that in that particular example, that is one factor, one clinical factor which you did not weigh or consider in coming to your pathological diagnosis?

MR. SCOTT: It is not a clinical factor, it is the conclusion that Dr. Rowe drew from the observation he made that this death was consistent with, though not indicative of digoxin toxicity, it is not a clinical observation he makes.

THE COMMISSIONER: Yes, all right.

MR. TOBIAS: Mr. Commissioner, I can't see how that conclusion could be drawn unless he was relying on clinical factors. I certainly understood Dr. Rowe's evidence to be just that. That in a view of the clinical symptoms which he observed as specifically when the question was specifically put to him ---

THE COMMISSIONER: Does this help us at all? There are no clinical indications, am I not right on this, on digoxin toxicity, I mean after death?



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THE WITNESS: Pathological.

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THE COMMISSIONER: Pathologically.

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MR. TOBIAS: I am not talking of
pathological indications after death. I was asking
the Doctor whether he was aware of some of the
clinical observations.

THE COMMISSIONER: I see what you mean,
yes.

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MR. TOBIAS: I understood his evidence
to be, no, that it was not discussed and he was not
aware of it.

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MR. SCOTT: Mr. Commissioner, surely
by now it is established that the clinical observations,
what we mean when we say a doctor made clinical
observations, is that he observed the phenomena apnea,
sweating, vomiting, what have you, or phenomena that
tests produce, like lab reports and so on.

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His observation of Dr. Rose is an
observation he made after he dealt with the Cook
case, in which he was referred back to another
series of earlier deaths. In my respectful submission
it is not the clinical observations, it is the
conclusion that if Justin Cook was poisoned with
digoxin, it is conceivable that a number of other
babies were also poisoned, it is not a clinical



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observation, and it is not fair to this witness to
put it to him as if it was.

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MR. TOBIAS: All right, let me re-
phrase the question.

5

6

Q. Doctor, at the time that you
reviewed the medical chart of Jordan Hines, was there
any reason in your mind to be suspicious of digoxin
toxicity?

7

8

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A. The child was not on digoxin.

10

11

Q. All right. Was there anything
in the chart that would have brought to your attention
the possibility of digoxin intoxication?

12

13

A. No.

14

15

Q. Was there anything said to you
by any of the cardiologists, or anyone else that you
might have discussed the case with, that would have
brought to your mind a suspicion of digoxin toxicity?

16

17

A. No.

18

19

Q. So that at the time you began
to prepare your autopsy report on Jordan Hines that
consideration didn't even enter the equation, did it?

20

21

A. That and many other
possibilities.

22

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Q. All right, I agree. But one of
the things that didn't enter into your equation was

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digoxin toxicity, do you agree with that?

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A. It was one of many possibilities,
yes.

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Q. You say it was one of many
possibilities?

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THE COMMISSIONER: That did not.

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MR. TOBIAS: Q. That did not enter
into the equation, so the simple answer to that is,
yes, you agree with me, it did not enter the
equation.

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THE COMMISSIONER: He is qualifying
that which he is entitled to do, it was just one of
many. I take it, for instance, also the gunshot
wound didn't enter into his equation.

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MR. TOBIAS: Exactly.

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Q. Now as I understand it, what
you were indicating this morning to Mr. Hunt, is that
were other factors brought to your attention, which
would be relevant to the mechanism of death, of the
mechanics of death, you might very well be willing
to alter your view of what the mechanism of death
was, but not necessarily your pathological diagnosis?

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A. It would be taken into
consideration along with other factors, yes.

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Q. Well again to go back to the

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very dramatic example of the gunshot wound. If that was brought to your attention, your pathological diagnosis might still stand, but you would agree that that was not necessarily the mechanism and the cause of death in a lay sense?

A. Yes.

Q. Is that correct?

A. Yes.

Q. So that what you are concerning yourself really is with the pathological findings which are consistent with a pathological diagnosis. Do you agree?

A. If other information becomes available that is taken into consideration.

Q. Is it taken into consideration in terms of making a diagnosis?

A. It depends what diagnosis one is talking about.

Q. Let us be specific. If you had been aware, in the Jordan Hines case, of the digoxin readings subsequently found in his tissue, prior to making your preliminary and final autopsy report, would that information have altered your ultimate diagnosis?

A. No, the clinical story and the



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pathology findings were those of missed-Sudden Infant
Death Syndrome diagnosis.

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THE COMMISSIONER: I am having trouble
with this word diagnosis again. This Commission is
not concerned so much with diagnosis as it is with
the causes of death and that is what we are after.

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MR. TOBIAS: I appreciate that.

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THE COMMISSIONER: It would obviously
have affected his determination of what the cause of
death was. I finally got it through my head that the
diagnosis of SIDS is there, or missed-SIDS, not the
SIDS itself, is there from the pathological findings.
The child may not have died from it, the child may
have died from digoxin poisoning.

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MR. TOBIAS: Exactly.

Q. Do you agree basically with the
Commissioner's summary?

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THE COMMISSIONER: Say no.

MR. SCOTT: You had better be careful,
we all agree with him so you may as well just say, yes.

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MR. TOBIAS: Q. Has he in fact
summarized it fairly?

A. Well I would say that would
take - I will say, no.

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Q. Inaccurately but fairly, is that



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a possible answer?

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A. All factors would have to be

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taken into consideration when dealing with a situation

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like this where a child has apnea which is associated

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with a very high fatality, that fact would have to be

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taken into consideration with any other information

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that is available in reaching a final conclusion, it
would not be an easy one.

9

Q. I understand that Doctor. I

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understood that what you were really saying, and please

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correct me if I am wrong, was that given other factors

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that might come to your attention, and other pieces of

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information that might come to your attention, there

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might be other diagnosis; or, I won't use that word

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because we are having difficulty with it; there might

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be other factors with respect to the mechanism of

death which you might consider?

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A. Yes, other factors would

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certainly become, certainly could be considered if

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they were available.

20

Q. And depending on the information

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that you receive, although you still might be quite

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satisfied with your missed-SIDS diagnosis from a

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pathological point of view, you could come to some

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other conclusion with respect to what actually caused

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the death, is that not correct?

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A. It depends what information is available.

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Q. All right. Is it correct though - have I got the theory right, that is all I am trying to get at?

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A. Which is?

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Q. Which is simply this: that although your pathological diagnosis might stand, depending on whether or not, whether other factors come to your attention, you might be prepared to entertain some other explanation as to the cause of death?

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A. Those would have to be considered in the background of pathological findings.

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Q. In conjunction with the pathological findings I would think?

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A. Yes.

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Q. So you would have to look at both?

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A. Yes.

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Q. And therefore depending on what other information another individual had in addition to your pathological findings, it is possible that that other individual might come to a different

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conclusion than you would regarding the mechanism of
death, is that also not true?

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A. Theoretically it may be possible
to come to a different conclusion, but I think the two -
it is such a theoretical question it is difficult to
answer --

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Q. Let's talk about it in practice.

If it were to come to your attention, hypothetically,
that someone else had an antemortem level of digoxin
in the Jordan Hines case that was considered in the
toxic range, that would be the other factor that one
would have to consider in conjunction with your
pathological findings, would it not?

A. Yes.

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Q. All right. And based upon that other factor and on a review of all of the circumstances, both the dig. reading and the pathological findings and any other relevant circumstances it is theoretically possible for that person to come to a different conclusion than you did regarding the actual mechanism or cause of death. Do you agree with that?

A. It is possible but one would still have to take into consideration the fatality rate that would be associated with those particular theoretical digoxin values that you mentioned and the fatality rate would be associated with that that is associated with missed-Sudden Infant Death Syndrome.

Q. Well, isn't what you are really saying that one would have to weigh the various hypotheses and somehow rank them and somehow come to one's own conclusion regarding which was the more likely?

A. Yes, there would be a consideration of that sort.

Q. Well, all right. Now, given that do you agree with me that in fact the pathological findings isolated by themselves are not necessarily the entire story in any one of these cases and in



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particular the Jordan Hines case, there are other factors that have to be looked at.

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A. I am not so sure it is particular of the Jordan Hines case, the case of Jordan Hines, but I agree that in all of the cases there are other possibilities, only some of which have been looked at, one of which is digoxin.

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Q. All right. When you say you are not so sure that that is particularly true in the Jordan Hines case does that have something to do with your own state of knowledge regarding the dig.levels and what they mean?

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A. No, I was talking with respect to the pathological diagnoses.

13

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Q. All right. Do you know what the dig.levels were today?

15

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A. No.

17

Q. All right. And without that information it would be very difficult for you to weigh the two hypothesis, wouldn't it?

18

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A. That's correct.

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Q. All right. I would take it that another factor that must be causing you some concern in this discussion is that even if you had the dig.levels you really have no experience in what

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2 any one given dig·level might mean?

3 A. My understanding is that
4 not only me but others have had trouble interpreting
5 the data in postmortem tissue, yes.

6 Q. That is correct, and there
7 is a pharmacological debate going on as to what those
8 levels mean?

8 A. Yes.

9 Q. So, for that reason it would
10 be difficult for you to indicate, if you did know the
11 dig.levels, or to rank the two hypotheses in terms of
12 which one you preferred?

13 A. Well, the information isn't
14 available, so, it would be impossible to rank at this
15 stage.

16 Q. All right, fine. Now, I
17 believe you told Miss Cronk last Thursday that
18 ordinarily it is the prosector who prepares the draft
19 and then reviews and discusses that draft at the
20 preliminary autopsy report with the staff pathologist.
21 Is that the ordinary procedure?

22 A. Yes.

23 Q. All right. And in this
24 particular case that we are talking about, and I
25 refer to the Jordan Hines preliminary aut^OPSY report,



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I take it it was Dr. Sugar who would have prepared the
rough draft?

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A. I assume she had input into
the rough draft, yes.

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Q. All right. Well, do you have
any independent recollection as to whether or not you
might have prepared the rough draft yourself?

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A. Not the entire draft, no.

9

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Q. All right. Is it possible
that you personally prepared parts of it?

11

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A. It's difficult to recall
which parts would have been done by whom or whether
I did any individually.

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Q. Would your notes as contained
in your file tend to help you at all in answering
that question?

15

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A. No they wouldn't.

17

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Q. All right. So, I take it
that if you had prepared parts of the rough draft,
that doesn't necessarily indicate that you would have
kept your notes on that preparation?

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A. That's right.

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Q. All right, fine. Now, at
the time that Dr. Sugar was actually performing the
autopsy, you indicated to us that you weren't present

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2 throughout the entire procedure, and I am now talking
3 about the gross or the original step.

4 A. Well, part of the gross
5 autopsy is looking at the organs after they have been
6 dissected free of the tissues and I was present at
7 the completion of that. So I did have an opportunity
8 at looking at the gross examination.

5
9 Q. All right. I believe you
10 indicated to us that at the time that you arrived
11 most of those tissues had already been taken out of
12 the body.

13 A. Yes.

14 Q. All right. Do you recall
15 whether there was very much discussion after that
16 procedure was completed between you and Dr. Sugar
17 regarding what the findings were at gross autopsy?

18 A. Well, the main interest was
19 at that point a viral myocarditis and our interest
20 was directed in that direction.

21 Q. All right. Well, specifically
22 what I am concerned about is this. When the organs
23 are removed from the body at gross autopsy is there
24 a dissecting of those organs in order to reduce them
25 to slides so that they can be studied microscopically?

A. What happens is that a sort of



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2 . rough specimen is taken first, that is, a
3 specimen that isn't precisely dissected, that is
4 fixed and then the following day a very neat section
5 of the tissue is taken. Is that what you were getting
6 at?

7 Q. All right. After that
8 very neat section of the tissue is taken how does
9 it then get put on to the slide so that you can study
10 it microscopically?

11 A. The section is then
12 essentially embedded in parafin and very thin slices
13 of the parafin embedded tissue are put onto slides
14 and those slides are then stained and observed under
15 microscope.

16 Q. My understanding is that
17 that does take some time, depending on which organ
18 we are working with. Some organs may take longer
19 to fix on slides than others, is that correct?

20 A. The variability is the
21 fixation - the variability is in the fixation, that
22 is the amount of time the tissue sits in the fixative,
23 yes, rather than in the processing of the slide.

24 Q. All right. So that it might
25 take longer to fix brain tissue on the slide for
microscopic study than some other kind of tissue?



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A. The brain tissue is fixed first and then the slides are taken. So the brain tissue is sitting in formolinfixative for a prolonged length of time and then the slides are taken, yes.

Q. But am I correct that in order to reduce the brain tissue to a form by which you can study it under microscope, which I understand to be a process whereby sections of the brain are put onto slides?

A. Yes.

Q. That process, that total process might take longer than the process would take with respect to other organs in the body?

A. Yes.

Q. All right. Now, with respect to the Jordan Hines case I take it that on the day the gross autopsy was performed on March 8th, 1981 there was no microscopic studies actually done at that very day?

A. No.

Q. Okay, they would have been done later?

A. Yes.

Q. So, at the time that you had any discussions with Dr. Sugar on March 8th you would



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only have been able to discuss the findings at gross
autopsy and not the findings as a result of microscopic
studies?

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A. Those discussions would have
occurred later, yes.

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Q. All right. And am I correct
that the rough draft of the preliminary autopsy
report would not have been commenced until after the
microscopic studies were completed?

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A. You mean in this particular
case?

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Q. Yes.

A. Yes.

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Q. All right. Now, can you
assist me with respect to the brain particularly,
who was it that conducted the microscopic studies.
Was it you personally or Dr. Sugar?

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A. What is done in terms of
the microscopic sections is that we have a microscope
with - well, it is called a double-headed microscope
so that one pathologist can sit on one side of the
microscope and another pathologist can sit on the
other side and they can both look at the same slide
at the same time and that is the way that the slides
are looked at. So, she sits on one side and I sit on



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the other and we look at the slides together.

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Q. And is that what was done
with respect to the brain tissue of Jordan Hines?

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A. Yes.

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Q. So that both you and Dr.
Sugar participated in the microscopic examination of
brain tissue?

8

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A. To the best of my knowledge,
yes.

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Q. All right. And I would assume,
correct me if I am wrong, that there was some
discussion ongoing at that time between you and
Dr. Sugar?

14

A. Yes.

15

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Q. Do you recall whether you
made any notes during that examination, that
microscopic examination of the brain tissue?

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A. I don't suspect I did,
I try to remember the findings.

19

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Q. You don't suspect that you
did?

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A. I don't suspect I wrote
anything down on the microscopic findings at that
point in time.

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Q. All right. And do you suspect



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or do you know whether Dr. Sugar would have made notes?

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A. Yes.

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Q. Regarding that specific discussion?

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A. Yes. Not of the discussion but of the findings, yes.

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Q. I am sorry.

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A. She would have made notes of the observations that we made under the microscope, yes.

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Q. All right, fine. Can I take it that it would have been those notes which would have assisted her in drafting whatever portions of the preliminary or of the rough draft of the preliminary autopsy report that she drafted?

16

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A. Yes, those notes would have been helpful.

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Q. All right. And you would therefore I take it have some direct input into how that rough draft appeared by virtue of the fact that you were both present when she was noting the observation and making the notes?

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A. Yes.

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Q. Am I correct?

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A. Yes.

Q. All right. So that, please correct me if I'm wrong, in this particular case would it be not the case that the first time you saw the rough draft of the preliminary autopsy report that that was the first time that you were seeing the information; in other words you would have had some familiarity before she prepared the rough draft of what information was ultimately contained in it?

A. Well, you're asking what information I had prior to the preliminary reports, is that correct?

Q. Well, more correctly, what information you would have had prior to the preparation by Dr. Sugar of the rough draft?

A. The information I would have had would have been a summary of the history, I would have had information on the appearance of the gross organs and I would be familiar with the findings of the brain tissue before it was sectioned, yes.

Q. All right. You would also be familiar I take it with the findings of the brain tissue after it was set?

A. Yes.



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2 Q. In other words, of the
3 findings of the microscopic study?

4 A. Yes.

5 Q. Okay. So that the rough
6 draft wouldn't come surely as a complete surprise
7 to you?

12 8 A. What do you mean complete
9 surprise?

10 Q. In the sense that it was
11 the first time you had ever seen that information
12 or noted the information or dealt with the information?

13 A. Yes.

14 Q. Okay. So, it was not a
15 surprise, you had some familiarity with the information
16 that was ultimately reported in the preliminary
17 autopsy?

18 A. Yes.

19 Q. Am I correct.

20 A. Yes.

21 Q. Okay. Now, you also
22 indicated in giving evidence to Miss Cronk that there
23 was no discussion that you could recall of the Hines
24 case at the weekly pathology conferences which were
25 held. I personally find that somewhat strange and
I want to know whether you agree with me. You



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2 indicated that you considered this a very interesting
3 case with some very interesting features, features
4 that warranted some special concern and special
5 investigation and that you intended to undertake a
6 very time consuming and specialized microscopic study
13 of the conducting system. One would have thought that
7 this would have been a very likely candidate for
8 discussion at the pathology conferences. Can you
9 indicate to me why it was not discussed.

10 A. The decision to discuss
11 the cases was pretty much in the hands of the Chief
12 Resident, Dr. Gillan who didn't have a particular
13 interest as far as I know in Sudden Infant Death
Syndrome.

14 Q. All right.

15 A. This case was interesting
16 from my perspective but perhaps not from his
17 perspective.

18 Q. Did you bring the case to
19 Dr. Gillan's attention?

20 A. I cannot recall doing that.

21 Q. Okay. Is it likely that
22 you would have brought the case to his attention
given your special interest?

23 A. I'm not sure if I would or
24
25



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2 wouldn't have, considering the fact that he wasn't
3 particularly interested in it.

14 Q . Okay. Now, in your evidence
4 to Miss Cronk you also gave some indication of what
5 the standard definition for a standard routine
6 autopsy was. Do you recall that evidence?

7 A. Yes.

8 Q. Now, it is my understanding
9 that at the time we are concerned with, between July
10 1st, 1980 and March of '81 it was not part of the
11 routine in the hospital to run drug screens as part
12 and parcel of an autopsy, is that correct?

13 A. That's correct. To my
14 knowledge it is not done in any hospital that I have
15 been in.

16 Q. All right. And the situations
17 in which a drug screen would be run would be where
18 it was specifically requested by a clinician; is that
19 one possibility?

20 A. Yes.

21 Q. Or where you, on the basis
22 of the history and clinical findings felt that it was
23 important to run a drug screen in order to confirm
24 or rule out various pathological suspicions or
25 findings. Is that as well correct?



Becker, cr.ex.
(Tobias)

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A. That would be uncommon, it would be also correct, yes.

Q. All right. Now, I may have misunderstood your evidence but I thought you told Miss Cronk on Thursday that in considering the standard and accepted definitions for autopsy, part of what was required was virus testing and toxicology testing. Have I understood that?

A. No, that is in error. That was corrected I think by Mr. Roland earlier this morning.

Q. All right.

A. Toxicological studies and virological studies are not part of a standard autopsy according to the conference.

Q. All right, they don't have to be done?

A. That's right.

Q. And it would be unusual in fact for them to be done?

A. In studies of Sudden Infant Death Syndrome where they have been done they have been negative.

Q. All right.

A. So, it would be unusual.



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Q. You also gave evidence on Thursday that in your view periods of apnea would be an absolute prerequisite for a missed-SIDS diagnosis. Am I correct?

A. Yes.

Q. All right. Now, you have been asked several times this morning whether there were different types of apnea and different degrees of apnea and I believe you agree that there are?

A. Yes.

Q. All right. Would you agree with me that shallow breathing or difficulty in breathing would not satisfy your definition of apnea?

A. Well, it depends what accompanies that shallow breathing. It may be associated with apnea.

Q. All right. So that in fact it does not have to be in order to be classed as apnea a complete absence of breathing?

A. Well, the definition of apnea is absence of air flow, that's clear. That is the definition of apnea.

Q. Well, I'm sorry, Doctor, perhaps you can help me but now I am somewhat



1
2 confused. I had asked whether shallow breathing
3 could be called apnea according to your definition
4 and I thought you had said yes.

5 A. Well, okay, I guess I had
6 better go back a few steps. Apnea is defined as
7 absence of air flow but in studies on missed-Sudden
8 Infant Death Syndrome people describe a variety of
9 breathing patterns which may or may not have
10 significance in terms of the question of Sudden Infant
11 Death Syndrome. The mere statement though of shallow
12 breathing leads me to suspect that there was something
13 wrong with the breathing and I would be unclear as
14 to the exact nature of that problem that prompted
15 somebody to say shallow breathing.

16 Q. All right. Specifically
17 what I am interested in is this. If the only
18 information that you had was that the chest was still
19 moving, would you be able to conclusively say whether
20 that was or was not an apnea spell?

21 A. If the chest was still moving
22 the child could still have an apnea spell, yes.

23 Q. All right. So, the fact it
24 was moving does not rule out the fact it might have
25 been apnea?

A. That's right.



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Q. Okay, fine. You also gave evidence on Thursday to the effect that brain stem gliosis could be found in missed-SIDS or in other children where it is assumed that they had apnea periods. Do I take it from that Doctor, and please correct me if I am wrong, that brain stem gliosis can be seen in cases that you would not perhaps diagnose pathologically as SIDS or missed-SIDS?

A. We have not seen astrogliosis in so-called normal children that have died of other causes. The only situation where we have seen astrogliosis is in children with congenital heart disease.

Q. All right. The point is, and I will ask the question directly, is brain stem gliosis, I know that it is indicative and one of the indicia of SIDS, but is it exclusively indicative of SIDS or can it be seen in conditions other than SIDS?

A. I just mentioned it can be seen in congenital heart disease.

Q. All right. And I believe that it is seen as accompanying apnea or as the result of apnea?

A. Yes, that is our feeling.

Q. All right. Now, other than



1
2 congenital heart disease are there other conditions
3 which might tend to produce brain stem gliosis other
4 than Sudden Infant Death Syndrome?

5 A. Other causes of hypoxia can
6 do that, yes.

19 7 Q. Okay. And I also believe
8 that you indicated to the Commissioner on Thursday
9 that hypoxia was not necessarily exclusively
10 indicative of Sudden Infant Death Syndrome. Am I
11 correct?

12 A. I'm not sure what you mean?

13 Q. Well, again, can we see
14 chronic hypoxia in children who do not ultimately
15 succumb to Sudden Infant Death Syndrome?

16 A. Yes, we can see it in
17 congenital heart disease.

18 Q. All right. Am I correct in
19 understanding that those children may in fact survive
20 the chronic hypoxia and go on to lead quite normal
21 lives?

22 A. If they survive this vulnerable
23 period of time, which would be variable for each
24 particular child, then it is conceivable that they
25 will go on and lead a normal life.

Q. All right. And am I also



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correct that the chronic hypoxia again is associated with the apnea phenomenon?

A. That's our understanding, yes.

Q. All right. So that it is the absence of air flow or the difficulty in air flow, or I think to use your words interrupted air flow which tends to cause the lack of oxygen leading to chronic hypoxia?

A. That's possibly so. The other side of the coin is that some people feel that there is just a chronic state of hypoxia and that this chronic state of hypoxia is exacerbated by these recurrent apnea spells.

Q . All right. I take it then that what you are giving us is two particular points of view in the medical community with respect to the relationship between apnea and hypoxia?

A. Yes.

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Q. Are you satisfied with one or the other at this point? Which one would you have more faith in?

A. They are not mutually exclusive.

Q. I would ask you the same question then with respect to the chronic hypoxia that I did with respect to the brain stem gliosis.

Although it is a commonly accepted pathological marker of Sudden Infant Death Syndrome, is it exclusive to that particular syndrome?

A. No. Just like many things in Medicine, there are very few things that are exclusive to one particular diagnosis.

Q. It is really the combination of all of these markers which leads you to have some confidence in the pathological diagnosis of the missed-SIDS?

A. Yes.

Q. You also indicated on Thursday that, in trying to explain the mechanism of death; that is, how the child died, you would want to know if there was a prolonged QT interval present or not. I believe you gave that evidence on Friday. Do you recall that evidence?



1
I2 2 A. No, I don't. Could you
3 repeat that, please.
4 THE COMMISSIONER: I thought he
5 did not. I thought that was no longer --
6 MR. TOBIAS: Page 7618 of
7 Volume 38, Mr. Commissioner. The exchange actually
8 starts on page 7617.
9 THE COMMISSIONER: I do not seem
10 to have that volume for some reason.
11 MR. TOBIAS: I'm sorry, you do
12 not have the entire volume?
13 THE COMMISSIONER: No. I've
14 been missed, skipped over. Thank you very much.
15 All right. It starts on page 7617?
16 MR. TOBIAS: Yes, line 21:
17 "Q. Well, given that that is
18 something that you attempt to do..."
19 And I believe that Miss Cronk was referring to a
20 proposition which she had just earlier put; that it
21 was part of the doctor's responsibility, in reporting
22 on an autopsy, to draw conclusions or express an
23 opinion as to the manner of death. So, "given that
24 that...", giving an opinion as to the cause of
25 death or mechanism of death:
"...is something that you attempt



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to do and consider to be part of
the responsibility of reporting
on the autopsy results, I take it
that, in that context, as distinct
from being able to reach and make
a diagnosis, the existence or the
non-existence of a prolonged QT
interval during life would be of
significance to you?

You would want to know
whether it was there or wasn't?
Do I have that correctly?"

"A. In terms of what, the
diagnosis?"

"Q. Trying to explain how the
child died. I understood you to
say it is irrelevant for you, for
the purposes of diagnosis."

"A. Yes. Right. It would be
important in terms of the mechanism
of death."

Now, if I understand that exchange
correctly, doctor, again, knowing whether or not there
was a prolonged QT interval would not necessarily
affect one way or the other your pathological



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diagnosis, but you would agree that it would have
some significance in explaining the mechanism or
the cause of death?

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Is that correct?

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A. Yes, that factor would
be taken into consideration.

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Q. Again, to go back to one
of the questions that I asked you earlier, you
indicated to me, when I first began my cross-examina-
tion, that, although you are primarily concerned
with pathological factors in coming to a pathological
diagnosis, there are other considerations which must
enter the question of the actual mechanism of death
in explaining how the child actually died.

15

Do I have that right? Is that
understanding correct?

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A. Based on the pathological
findings, you mean?

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Q. Doctor, it is really not
that difficult. Simply put, it is this:

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Notwithstanding the fact that you
are primarily concerned with the pathological findings
and the pathological mode of death, there are other
factors, aside from the pathological findings, that
you would consider in explaining the mechanism of



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death?

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A. Clinical/pathological

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findings, yes.

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Q. And depending on what

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those other findings were, those other pieces of
information, it may or may not cause you to draw a

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conclusion with respect to the mechanism of death

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which is consistent with the pathological diagnosis?

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A. Yes.

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Q. Do I understand your

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evidence correctly that the existence of a prolonged
QT interval is one of those things that you would

12

want to know about with respect to explaining the

13

mechanism of death, regardless of the pathological

14

diagnosis?

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A. There is a great deal of

16

controversy surrounding the QT interval. I would not

17

want to hang my hat on the QT interval.

18

Q. Doctor, I am not asking you

19

to hang your hat on it. I'm saying, ~~is that~~ one

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of the factors that you would want to look at. I

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realize there may be a great many factors, but is
that one of them?

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A. It would be a factor that

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would be taken into consideration and, if found,

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actually, it would support the hypothesis that there is something wrong with the neural control of respiration because the QT interval abnormality is really controlled by the nervous system, so it would be quite complementary, to my way of thinking, if that had been found.

MR. TOBIAS: Mr. Commissioner, I inadvertently started into an area that will probably take some time. I think this might be an appropriate time to break for lunch.

THE COMMISSIONER: Any thoughts on how long you will be this afternoon?

MR. TOBIAS: I would think approximately two hours.

THE COMMISSIONER: Approximately two hours is approximately the afternoon.

MR. TOBIAS: Well, put another way, then, yes, I would not be surprised at all, Mr. Commissioner, if I took the balance of the afternoon.

THE COMMISSIONER: Yes. All right.

We will rise until 2:30.

-- luncheon recess.



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--- on resuming.

THE COMMISSIONER: Mr. Tobias.

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MR. BROWN: Mr. Commissioner --

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THE COMMISSIONER: One moment.

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Yes, Mr. Brown.

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MR. BROWN: If I may, just before
Mr. Tobias --

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THE COMMISSIONER: Yes, certainly.

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MR. BROWN: Mr. Commissioner, if

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I could interject for one moment. Regarding the

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appointment tomorrow, may I ask your indulgence,

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on behalf of Mr. Sopinka, to postpone that until

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Wednesday. A court date has arisen out of town

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which he cannot avoid, since I last spoke to you, and

15

he would very much like to have the opportunity of
making his submission personally.

16

I know it is short notice but if

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Wednesday afternoon would be appropriate, he would be

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most appreciative if that could be set aside.

19

MR. SCOTT: Mr. Commissioner, I

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am astounded by that because Mr. Sopinka phoned me

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this morning because he and I have a court case on

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Wednesday, and he said he could not be here on

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Wednesday for our court case; that he was going to
be away.

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MR. BROWN: I have spoken subsequently to Mr. Sopinka. It is always a great game trying to track this down, but he has assured me that he will be away part of Wednesday but he will be here Wednesday afternoon.

MR. SCOTT: Perhaps you will let me know where he wants me and I will be there.

THE COMMISSIONER: Everybody has an interest because we arranged it last week for Tuesday at Mr. Sopinka's request. I do not know whether anybody else has trouble making Wednesday at 4:30. I can make it. It is not as easy. And you will have to tell Mr. Sopinka that I will be less patient on Wednesday than I would have been on Tuesday because I notice I have an engagement at 6:00 p.m. So, there you are.

MR. BROWN: Would Thursday be a better day?

THE COMMISSIONER: Thursday, I have one at 5:30.

MR. BROWN: That would be even less inviting, then.

THE COMMISSIONER: So, there you are. Well, I think we will make it Wednesday.

Has anybody else any serious



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2 problems about Wednesday?

3 MR. YOUNG: Mr. Commissioner, I
4 would only say that, clearly, Mr. Percival would
5 enjoy participating in that discussion, and I would
6 like the opportunity of speaking with him to see if
7 he is available on Wednesday.

8 I think you had put to him any
9 day next week and we had agreed on Tuesday; so we
10 have been working around Tuesday.

11 THE COMMISSIONER: Would you
12 check with him and let us know. Is he in town?

13 MR. YOUNG: He is at the office.

14 THE COMMISSIONER: Perhaps you
15 could let us know then at 3:30 or quarter to four.

16 MR. YOUNG: Just after the break
17 I will report back.

18 THE COMMISSIONER: All right.

19 Thank you.

20 MR. TOBIAS: May I proceed, Mr.
21 Commissioner?

22 THE COMMISSIONER: Certainly.

23 MR. TOBIAS: Thank you.

24 Q. Dr. Becker, prior to the
25 luncheon break, we were discussing a number of the
epidemiological features which one might see as



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being suggestive of certain mechanisms of death in children, and I believe your evidence was that, although some of those factors would certainly have to be taken into consideration in accounting for the death in terms of mechanism, it would not necessarily go to your decision in making a pathological diagnosis of missed-SIDS.

Have I understood that evidence correctly?

A. Yes, I believe that is correct.

Q. I believe you told me that one of the things that would not necessarily influence your diagnostic findings was the presence of a prolonged QT interval.

A. In terms of the diagnosis, per se, yes.

Q. Miss Cronk asked you, I believe it was on Thursday, regarding the presence of an upper respiratory infection and whether or not that is often seen in the week prior to death in the SIDS case. I believe your answer was, "Yes, that is a common finding".

A. Yes.

Q. With respect to the



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presence or the absence of that upper respiratory infection, is that also one of those factors that would go more to the cause of death, the mechanism of death, than it would to the pathological findings or diagnosis on autopsy?

A. That is one other factor that would be taken into consideration on both, yes, but particularly the mechanism of death.

Q. All right.

And, as you say, another factor taken into consideration specifically with respect to the mechanism of death, as distinct from the diagnosis itself?

A. It plays a role.

Q. Is it oversimplifying - and please tell me if it is - if I paraphrase you by saying that, with respect to the pathological diagnosis itself, things like a prolonged QT interval and upper respiratory infection are simply not relevant?

A. They play a role, too, in making a final consideration.

I think I mentioned earlier that there are primary factors and secondary factors, and I would put that in the secondary factor category.



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Q. So, you would not say that they would be as relevant as they would be secondary to the more important findings, such as periods of apnea during life and the four pathological markers that are often seen on autopsy?

A. Yes.

Q. With respect to another factor, which I think Miss Cronk again asked you about; failure to thrive and low birth weight, I believe your evidence again was that it is seen in a large number of SIDS cases but that that would not influence your diagnosis; that that factor may - and I am quoting - "support it or detract from it" but your diagnosis would have to rest on the pathological markers.

Specifically, what I am interested in is, what did you mean by your choice of the words that finding "may support it or detract from it"?

A. It is another factor to be taken into consideration, another epidemiological factor that might not be present in a particular case.

Q. Am I correct that it would be a secondary factor?



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A. Yes.

Q. And that its absence or presence, when you say "may detract from it", I take it you are not referring to the pathological diagnosis of miss-SIDS but, again, to the mechanism of death?

A. I would have to go back to that passage to know for sure.

Q. Let me assist you.
Volume 38, page 7620, starting at approximately line 16:

"Q. And in terms of considering what features, and there may be none, doctor, what features you would wish to confirm as being present or at least know whether or not they were observed during your particular patient's life would, for example, evidence of failure to thrive or weight loss, trouble with feedings be of interest to you? Would it be important to you to observe that in a child's chart?"

"A. As I mentioned to you before, those are epidemiological features that have been described



1
2 in Sudden Infant Death Syndrome
3 in large numbers of cases but
4 they wouldn't influence my opinion
5 in terms of the diagnosis.

6 They may support it or they
7 may detract from it, but my
8 diagnosis would have to rest on
9 features that I have mentioned,
10 the pathology primarily with the
11 consistent clinical story."

12 Those were the words you used.

13 Was I correct in my assumption
14 before that, when you say that those kinds of
15 features "may support it or detract from it", you
16 were really referring again not to the specific
17 pathological diagnosis but the mechanism of death?

18 A. I understood I was re-
19 ferring to the diagnosis of Sudden Infant Death
20 Syndrome, not mechanism of death, in that passage.

21 Q. So, are you saying that,
22 in a secondary way, all of these other epidemiological
23 factors are also important in either confirming or
24 not confirming the diagnosis itself?

25 A. Yes. A variety of factors
are taken into consideration, as I have mentioned.



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Q. Is it fair to say from that that perhaps the most persuasive evidence would be the presence of apneas, the presence of the four pathological markers, the presence of either a number of, or all, of the secondary features and the absence of any other pathological explanation?

Would that not, in effect, be the strongest case that you could put forward for a miss-SIDS diagnosis?

A. The trouble is you cannot use the epidemiological factors for a diagnosis in this particular case because they are not present in all cases. Some of them are present very rarely. So, the epidemiological factors are background factors; they are essentially - when I say epidemiological, I mean they show the relationship of the various factors which determine the frequency of a particular process; in this case, Sudden Infant Death Syndrome. So, they really are secondary factors.

Q. I accept the fact that they are secondary factors but, when you use the word "they" either "support it or detract from it", I take it the "they" refers to the epidemiological factors?

A. Yes.



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2 Q. And I take it that the
3 "it" that you are referring to, "support it or
4 detract from it", you are now telling me is not the
5 mechanism of death but the diagnosis itself?

6 A. I believe that was the
7 context in which that question was asked.

8 Q. So, if you found all of
9 the four pathological markers and the presence of
10 apnea during life, you would be somewhat comforted,
11 would you not, if you also saw all of the secondary
12 epidemiological factors?

13 A. It would not make any
14 difference to my diagnosis as a pathologist.

15 Q. Would it not make your
16 diagnosis even stronger and more positive?

17 A. The diagnosis now is
18 strong enough for the diagnosis.

19 Q. I am not asking you whether
20 the diagnosis now is strong enough or not; what I am
21 saying is, if they were all there, would that not make
22 it even stronger?

23 A. The diagnosis of Sudden
24 Infant Death Syndrome is not based on the epidemio-
25 logical features. It is based on the pathology and, in
terms of missed-Sudden Infant Death Syndrome, is



1
2 based on the history of apnea. The epidemiological
3 factors may or may not be present.

4 Q. Perhaps you can help me
5 with this, then, and then I will ask the question
6 directly: What were you trying to convey to us,
7 then, when you used the words "they either confirm
8 it or detract from it"? What point were you trying
9 to make?

10 A. I suppose, in a particular
11 instance, they may be present in high or low incidence.
12 if you look at any particular epidemiological
13 factor, but I was not trying to suggest anything more
14 than that.

15 Q. What I fail to see, and
16 perhaps it is just me; perhaps I am hopelessly con-
17 fused, but if they are not really relevant in terms
18 of strengthening the diagnosis and your belief in the
19 diagnosis, how could their absence in any way detract
20 from the diagnosis?

21 A. They really don't.

22 Q. All right.

23 Is that a fair summary then, that,
24 regardless of what appears in the transcript, you were
25 really not trying to say that their absence in any
way detracts from the diagnosis?



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A. That is correct.

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Q. My next question is: Of

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what relevance, if any, are they?

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A. They are important in

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terms of attempting to identify a group of children
that may be at risk. They may be valuable clinical

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factors. We don't really know at the moment of

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what value they are.

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Q. You say that they may be

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of some value in determining what children are at

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risk and, therefore, they have a clinical value?

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A. They may have. We do not

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know at this point in time.

14

Q. All right.

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Do they have any corresponding
pathological value?

16

A. We really do not know at

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this point in time.

18

Q. I take it that, in the

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case of Jordan Hines, one of the things that was

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suspected in terms of the clinical diagnosis which

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you observed before the autopsy began was the possi-
bility of some type of infection?

22

A. Yes.

23

Q. I understand that one

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2 possible type of infection, which would be in the
3 sepsus category, was a viral infection affecting
4 the heart muscle?

5 A. Yes.

6 Q. Or some form of myo-
7 carditis?

8 A. Yes.

9 Q. Was there also suspected
10 pneumonia?

11 A. Yes, that was another
12 possibility.

13 Q. And would pneumonia
14 fall within the category generally of an upper
15 respiratory infection? Is it a subcategory of that?

16 A. Often associated with
17 pneumonia, you may have an upper respiratory tract
18 infection. So, it may or may not be a factor.

19 Q. And were you able to tell,
20 as a result of your autopsy on Jordan Hines, either
21 grossly or microscopically, whether or not the
22 presence of an upper respiratory infection was con-
23 firmed?

24 A. We could not confirm
25 infection.

Q. Could you rule it out?



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2 A. Yes. There were no
3 inflammatory cells to indicate an inflammation, so
4 we could rule it out, yes.

5 Q. So, it is fair to say,
6 then, in the case of Jordan Hines, we can ignore,
7 in any event, the suspicion of upper respiratory
8 infection? It does not appear that he was suffering
9 from that?

10 A. How can we ignore it? There
11 was some suggestion in the clinical history but we
12 certainly did not substantiate that in terms of
13 pathology. The child was being treated with anti-
14 biotics as well.

15 Q. That was my next question.
16 Perhaps you can assist me.

17 Is it possible that, during life,
18 one can suffer from some type of infection, be treated
19 for it and put on antibiotics, subsequently die, and,
20 although that condition was present during life and
21 contributing to the patient's condition, there is no
22 evidence of it after life, on autopsy?

23 A. No. If the child had
24 pneumonia at the time the child died, we would see
25 it at post mortem.

Q. That is not what I am



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asking though, doctor. Is it possible that he might have had pneumonia or some other type of infection which, perhaps, maybe was not present at the time he died; perhaps, by then, it had already responded to the antibiotics and, therefore, would not show up on autopsy? Is that possible?

A. He certainly could have had an infection prior to --

THE COMMISSIONER: And he was cured.

A. -- prior to his death.

MR. TOBIAS: Q. That is precisely what I am asking; that it is possible?

THE COMMISSIONER: I think it is not only possible, but I think it is certain.

A. Yes.

THE COMMISSIONER: I don't understand it. If you have had a cold in the past and got rid of the cold, it won't show in the pathological examination after the germ has departed.

Am I missing something?

MR. TOBIAS: No, you are not missing anything at all, Mr. Commissioner.

What I am trying to do is draw a distinction between one of two possibilities; I am



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2 not sure that we can satisfy ourselves which one it
3 is.

4 There is, on the one hand, the
5 possibility that you theorize; that one has a
6 condition and is cured. My specific question for the
7 doctor is: If there is no evidence on autopsy of
8 infection, upper respiratory infection, does that
9 mean that it was, at some time during life, definitely
10 present and had been cured, or is it also not a
11 possibility that it was just never there? It was
12 suspected but, in fact, it was not there?

13 A. Presumably, it could be
14 either of those possibilities.

15 Q. All right.

16 And, from the pathological
17 evidence, can you tell which of the two possibilities
18 it is?

19 A. The only suggestion that
20 there was anything going on in the lungs was a small
21 thrombus, which we found in the lungs, but I do not
22 think that you could say definitely that that was
23 related to any pneumonia. It is something that is
24 found fairly frequently. So, I would say from the
25 point of view of pathology, we have no evidence of
infection. I could not say whether there had been



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infection before that time or not.

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Q. Let me see if I have got

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it now. From the point of view of pathology, we
have no evidence of an infection?

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A. That is correct.

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Q. But that does not

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necessarily tell us whether it was there in life and
cured, or whether it was just never there?

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A. When you say "there in

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life", I am not sure what you mean. I can say that
it was not there at the time the child died but it
could have been there a week before death, yes.

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Q. All right.

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And the fact that it was not there

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when the child died is equally as consistent with the
possibility that it was not there a week before as
it is with the possibility that it was there the
week before?

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THE COMMISSIONER: I would have

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thought it was more consistent.

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Where are you taking us, Mr.

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Tobias, on this thing? There was no evidence of
pneumonia during the autopsy. What difference does
it make, or does it make a difference, whether there
was or there was not?

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2 MR. TOBIAS: Yes, it does, because
3 the presence of an upper respiratory infection or
4 pneumonia - and I rely here on my cross-examination
5 of Dr. Fowler and Dr. Rose - may shed some light on
6 the question of this period of apnea. So, it is
7 important for us to determine.

8 THE COMMISSIONER: I think that
9 the doctor has said that he cannot tell.

10 Have you not said that pathologically
11 you cannot. If it is not there, you cannot tell
12 whether it was there before or not?

13 THE WITNESS: No.

14 THE COMMISSIONER: We can go on
15 to something else.

16 MR. TOBIAS: Thank you.

17 Q. I believe you told Miss
18 Cronk, in your evidence on Thursday, that if you were
19 to observe periods of apnea in combination with the
20 four other pathological markers but also were to
21 observe a gunshot wound in the temple that, in that
22 particular case, you would not be prepared to say
23 that it was miss-SIDS that was the mechanism of
24 death.

25 Correct me if I am wrong, I under-
stood that the reason why you take that view is



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2 because, in that particular example, there is
3 overwhelming evidence seen pointing to some other
4 cause of death. Is that a fair summary?

5 A. During a standard autopsy,
6 one would be able to detect a bullet wound to the
7 head, yes, that is correct. So, that would be one
8 diagnosis as to the cause of death.

9 Q. All right.

10 Did you, in fact, use the words
11 that there was "overwhelming evidence"? Is that
12 the way you phrased it, do you recall?

13 A. I would have to go back
14 to the transcript. I don't recall.

15 Q. I don't propose to do that
16 because I do not think anything --

17 THE COMMISSIONER: There was
18 overwhelming evidence, I can tell you that.

19 MR. TOBIAS: I do not propose to
20 go back to it, in any event, Mr. Commissioner, because
21 I do not think anything in particular turns upon it.

22 Q. However, what I would like
23 to know is this: If one were to run toxicology tests
24 on an infant at death - and I know that in the case
25 of Jordan Hines, that was not done - I ask you to
consider this hypothesis. If such tests were done



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on fresh post mortem blood and if one were to find
present in that fresh post mortem blood very, very
high levels of digoxin, then, of course, subject to
the pharmacological debate on what those results mean
and what the interpretation is, would you agree with
me that that, as well, would be evidence pointing to
another diagnosis?



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A. No, not another diagnosis, that information would have to be taken into consideration.

THE COMMISSIONER: Or another cause of death.

MR. TOBIAS: You are quite right Mr. Commissioner, another cause of death, not diagnosis.

THE WITNESS: That information would have to be taken into consideration for cause of death as well.

MR. TOBIAS: Q. So that the pathological diagnosis of missed-SIDS would still stand, but alongside of it would be this other evidence pointing to toxicity as the mechanism or cause of death?

A. No, I didn't say that. I said that whatever the data that is available in terms of the digoxin levels would have to be taken into consideration in view of the high fatality rate that is associated with apnea, and those two factors at least, as well as perhaps other possibilities that we are not familiar with would have to be taken into consideration in terms of the final determination of cause of death.

Q. Did I have the first part of it right? That in spite of that finding the pathological



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diagnosis would stand?

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A. Yes.

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Q. Am I right that far?

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A. Yes.

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Q. And are you saying that the digoxin data would be another consideration to look at in postulating the mechanism of death, but you can't be certain how likely an explanation it would be; is that fair?

10

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A. Yes, it is another consideration along with other possibilities, yes.

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Q. And in order to be a little bit more precise about how likely an explanation it was, we would have to know about this pharmacological debate, am I right?

15

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A. That would be part of the information we would need, yes.

17

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Q. We would have to know what the readings once found, meant?

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A. Yes.

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Q. Now, of the four pathological markers that we have been discussing: the gliosis of the brain stem; the extramodulary hematopoiesis; the thickening of the pulmonary arterioles; and the brown fat; which of those four in fact, if any, are seen



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and detectable at gross autopsy?

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A. None of those changes are
apparent at gross autopsy.

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Q. So they would all have to be
studied --

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A. No, the brown fat would be
apparent.

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Q. Any others?

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A. No.

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Q. The other three would have to
be studied microscopically, is that correct?

12

A. Yes.

13

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Q. Now, you indicated the other
day that with respect to the final diagnosis contained
in the final autopsy report.

15

A. Yes.

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Q. And I refer you to Exhibit 103A,
the second page. I believe you indicated to Miss
Cronk that you couldn't recall any specific discussion
with Dr. Sugar regarding final diagnosis, but you
are sure that those discussions took place?

21

A. Yes.

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Q. Now I would take it that any
discussions you had regarding the final diagnosis
would have to have awaited your microscopic studies?



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BB 4

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A. Yes.

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Q. You told me before that both yourself and Dr. Sugar were present when the microscopic studies of the brain tissue were done?

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A. Presumably she was, we were doing them together.

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Q. We presume there would have been some ongoing discussion and some ongoing observations made which would be shared by both of you?

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A. Yes.

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Q. With respect to that portion of the final autopsy report labelled: "Pathological Diagnosis" are you in a position to tell me who the author of that was; was it Dr. Sugar, was it yourself, was it the both of you?

16

A. I take responsibility for that.

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Q. So that although Dr. Sugar may have prepared the rough draft of it, you would be the author, she was putting down on paper basically the observations that you had made?

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A. She certainly contributed.

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THE COMMISSIONER: I don't think he said he was the author, I think he said he took responsibility for it.



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Q. All right, does it go beyond that, Doctor? Would you agree with me that you were the author?

A. Well as I said before, she contributed some aspects to the diagnosis, which she contributed and which I contributed I don't know.

Q. All right, that is fair, but you both had some input into it?

A. Yes.

Q. In other words there would have been observations made on that brain tissue by both of you; and as a result of those observations and the discussion you would have come together to a diagnosis, is that fair?

A. Yes, pretty well.

Q. You have also told us in your evidence of Thursday, that with respect to the word "query" as used in the final autopsy report, and please correct me if I am wrong, that what you were referring to was not the diagnosis itself but the mechanism of death.

Now, I would like to understand specifically what you mean by that. I understood you to tell us on Thursday that one of the things that you were not sure about was your hypoxia hypothesis, is



BB 6

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that correct?

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A. I don't recall saying I wasn't
sure.

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Q. All right, let me re-phrase that,
because I want to be fair. You were postulating that
the chronic hypoxia interferes with the respiratory
function and breathing to cause death, is that
correct?

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A. Well as a consequence of
hypoxia there is scarring in the brain stem and that
then acts to interfere with the respiratory function,
with or without cardiovascular function and death,
yes.

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Q. And I think you also told us
that you were concerned about an abnormal neuron in
the brain which controlled respiratory function?

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A. Well more than one likely.

17

Q. And you were hypothesizing that
that might also have something to do with cardiac
function, and that therefore both the apnea and the
presence of tachycardia and bradycardia might be
explained by this abnormal brain function?

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A. Yes.

22

Q. Is that a fair statement basically
with the apnea hypothesis?

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BB 7

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A. Yes.

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Q. Now, correct me if I am wrong.

4

You have told us that one thing that you would expect to see in all of the SIDS deaths would be apnea, that would be an absolute prerequisite.

5

6

A. In missed-Sudden Infant Death Syndrome.

7

8

Q. I am sorry, you are quite right,

9

in missed-Sudden Infant Death Syndrome.

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A. Yes.

11

Q. I take it that the pathological

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diagnosis in the Hines case is missed-Sudden Infant Death Syndrome?

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A. Yes.

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Q. You also told us that you would

15

want to see at least one or more of the four

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pathological markers?

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A. Yes.

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Q. Now, correct me if I am wrong,

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and maybe I just don't understand it. Isn't the

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central question in all missed-SIDS cases how the

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apnea actually mechanically accounts for the

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interference with the respiratory function and

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breathing and combines to cause death, isn't that the

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central question in all missed-SIDS cases?

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A. Would you say that again?

3

Q. If we were to try and actually

4

discover the actual mechanism of death in a missed-SIDS case.

5

A. Yes.

6

Q. Isn't the central question that

7

we would want to answer, precisely how the apnea

8

interferes with respiratory function and breathing

9

and ultimately causes death, isn't that the central

10

puzzle?

11

A. No, I think the central question

12

is rather confusing the way you worded it.

13

Q. All right, I will do my best to

14

try and re-phrase it.

15

THE COMMISSIONER: It would be better

16

to let the witness answer what the central question

17

is. I would have thought apnea is the loss of blood.

18

THE WITNESS: Yes.

19

THE COMMISSIONER: And if the apnea is

severe enough that is the end of the child.

20

THE WITNESS: Yes.

21

MR. TOBIAS: Q. What I am getting at

22

is this, Mr. Commissioner. With respect to the

23

actual explaining of the mechanism of death itself,

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what actually happens when apnea sets in.

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BB 8



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BB 9

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A. Yes.

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Q. Wouldn't it be the central question to that riddle, to find out exactly what happens mechanically to the breathing function, and how the apnea interferes with it?

A. Not the mechanical function, we are talking about the neural control of the neurons that are going to the muscle, the movement by the muscles of the chest is the mechanical aspect, but we are not talking about the mechanical aspect, we are talking about the neural control of that aspect.

Q. And if you can answer that question, then you would know something about the actual mechanism that interferes with the breathing function and might at the same time, if you conducted a study of the conduction system and found it was normal, be taken as some proof that it might also interfere with cardiac rhythm?

A. You will have to go over that again.

Q. Okay, we will do that.

MR. SCOTT: Are we not getting rather far afield?

THE COMMISSIONER: It is certainly a great lesson in medicine but I am not sure I am



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interested in it.

MR. SCOTT: We are all going to go into practice later when this is over, although the OHIP rates have rather discouraged it.

The issue insofar as my friend is concerned is the cause of death of this baby. Surely it is perfectly clear now we have the three pieces of evidence, namely the pathology report; we have the exhumed serum; and we have the history, the epidemiology -- This kind of analysis advances us, it seems to me with the greatest of respect, not one bit. The pathology report is there and it is a factor that you may well have to consider, but analyzing it from stem to gudgeon for the fourth or fifth time doesn't advance it.

MR. TOBIAS: With respect Mr. Commissioner --

THE COMMISSIONER: Apnea could kill, just one attack of apnea could kill.

MR. TOBIAS: No, no, I --

THE COMMISSIONER: If it were in fact that is what killed this child, that is the answer.

MR. TOBIAS: I understand that.

THE COMMISSIONER: If on the other hand it is the digoxin or that is what caused it to - I



BB 11

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really don't know how this advances us. If you can perhaps tell me which way you are heading.

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MR. TOBIAS: Well I am trying to Mr. Commissioner. The central question with respect to this particular pathological report lies in Dr. Becker's own evidence regarding what he in fact meant to convey when he used the word "query". I am merely investigating that explanation, it was the Doctor who put that explanation on the record.

10

11

THE COMMISSIONER: The diagnosis is of missed-SIDS, he has said that about twenty times.

12

MR. TOBIAS: I am sorry?

13

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THE COMMISSIONER: He has said the diagnosis was of missed-SIDS.

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MR. TOBIAS: Yes.

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THE COMMISSIONER: And he is, and perhaps I am misstating it perhaps, although that is the diagnosis all of these things are indicative of missed-SIDS, but the query, this is the way I am inclined to read it and the witness may not agree, is whether that was the eventual cause of death or not, but that is not certain. But the diagnosis was missed-SIDS. Maybe I have misstated it, maybe he is perfectly happy that missed-SIDS was the cause of death as well as the diagnosis, I don't know.



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MR. TOBIAS: Mr. Commissioner, the way I read it is the "query" and I thought I understood the witness' evidence quite succinctly on this point was that the query related to the actual mechanism of death.

THE COMMISSIONER: In any event whether there was a query there or not, there is a query now because there is digoxin in the blood of this child, so therefore there is a question as to what was the cause of death, whether it was missed-SIDS or whether it was digoxin poisoning, is there not?

MR. TOBIAS: Yes Mr. Commissioner. But if it can be established that that query regarding the mechanism of death is the central question in all cases, then I think I am entitled to ask why it was specifically raised in this report.

THE COMMISSIONER: Please don't misunderstand, you are entitled to ask questions, the only thing is if the answer to the question isn't going to help us I don't know why you continue to ask the question, that's all. To me at any rate, I have said this so often, that there is - that most of these children except for Jordan Hines, one theory is they died of the anatomical condition. The other theory, the only one I find any evidence purporting to it at



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all is a massive overdose of digoxin. In the case of Jordan Hines the one theory is the missed-SIDS and the other one is digoxin poisoning.

Now, I don't know, maybe it will help you to go through all of this.

MR. TOBIAS: I hadn't intended when we started to belabour the point, but I seem to be having some difficulty, Mr. Commissioner, in explaining to Dr. Becker what my question is really all about. Now, I would like to take one last effort to do that.

THE COMMISSIONER: All right, try once more.

MR. TOBIAS: In very very simplistic language.

THE COMMISSIONER: Simple language, not simplistic.

MR. TOBIAS: Q. Dr. Becker, am I right in saying that by the word "query" you were referring to what the actual mechanism of death was?

A. Yes, that is what I said previously.

Q. Now, as I understood it when we talked about the mechanism of death the way in which the death actually happens, what we want to know is how the chronic hypoxia interferes with respiratory



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function and breathing?

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A. I don't see that at all.

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Q. I am sorry, I have used the
wrong word, how the apnea actually interferes with
the breathing function?

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A. As a consequence of disturbed
respiratory system we get apnea.

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Q. Yes. Is it not important to you
to understand the relationship between the two in
order to understand how the death occurred? That is
really all my question is. Is it not important to
you as a pathologist, studying the subject, to
understand the relationship between the apnea and the
difficulty in breathing in order to know how the death
actually takes place?

THE COMMISSIONER: I thought apnea and
difficulty in breathing were the same thing.

THE WITNESS: Yes.

THE COMMISSIONER: Have I misunderstood
this, that is what it is, apnea is a failure to breath?

MR. TOBIAS: Yes.

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MR. TOBIAS: Yes. What I am asking
the Doctor, Mr. Commissioner ---

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MR. SCOTT: Well, I wish you would
make it so.

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MR. TOBIAS: What I am trying to find
out, Mr. Commissioner, is whether or not the Doctor
is interested in actually finding out what machanicallly
happens when apnea sets in, why do we have difficulty
in breathing.

10

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THE COMMISSIONER: Well, what you
really want to know is what causes the apnea, is that
what you mean, is that what you're saying?

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MR. TOBIAS: That is another way
of looking at it I suppose.

14

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MR. SCOTT: Well, Mr. Commissioner,
I will just say it again and then I'll stop. This
is not an examination for the admission to the
Royal Collège.

18

THE COMMISSIONER: No.

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MR. SCOTT: I mean, the issue here
is the cause of death of this particular baby and,
you know, to probe the Doctor about whether he's
curious about this or that seems to me beside the
point, but I will stop now for the day.

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MR. TOBIAS: Q. All right, Doctor,



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2 so will I. Let me ask you this question. What is
3 so significant or special or unusual about this
4 particular Sudden Infant Death. Why the curiosity,
5 why the query? What was it about this particular
6 episode that made you pose the question?

2 A. This child is probably one
7 of the most classical cases of missed-Sudden Infant
8 Death Syndrome that one can see. It was a well
9 documented case, well documented apnea and three
10 different sites now documented by three or four
11 outstanding clinicians and the pathology was
12 classical.

13 So that this case is a very good
14 example of missed-Sudden Infant Death Syndrome. I
15 was anxious therefore to show, to the best of my
16 ability, the pathology in this particular instance,
17 therefore, we pursued the examination of the brain
18 in some depth, we also speculated that it would be
19 worthwhile to look at the conduction system of the
20 heart and, furthermore, we also went to considerable
21 trouble to do some research studies on the carotid
22 body of this particular infant because it was such
23 a classical case.

24 Q. All right. With respect
25 to the investigation into the conduction system why



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2 was that so important?

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4 A. As I mentioned to you before
5 the hypothesis that we feel is the most likely is
6 that there is an abnormality in the narrow control of
7 respiration and probably also cardiovascular rate and
8 perhaps rhythm.

9
10 However, there are some reports in
11 the literature that is suggested in the past that
12 there might be hystological abnormality in this
13 conduction system and, as I have said earlier, the
14 studies go back to a particular study done by James
15 who is a cardiologist who found abnormalities but
16 these could not be confirmed later when the same study
17 was done by Dr. Valdes-Dapena. Since that time there
18 are a very small number of reports, particularly from
19 the Boston area, of very subtle irregularities on the
20 anatomy of the conduction system which may be of
21 academic interest in terms of looking at it. With
22 that background I was interested in showing that in
23 fact the conduction system in this child was normal.

24 Q. All right. In summary, were
25 you attempting to explore the way that the hypoxia
may have interferred with respiratory function and
produced death. Is that a fair summary of what it
was you were trying to investigate?



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A. No, the assumption is that there was hypoxia and this produced changes in the brain and those changes that we saw in the brain were being used as an explanation for the apnea.

Q. Well, Doctor, on Thursday you were asked this question by Miss Cronk at page 7657:

"Q. All right. Can you help me as to what you mean by the mechanism of death in that context?"

You own answer:

"A. Well, the last four lines of the autopsy report are referring to an explanation for the way that the hypoxia, chronic hypoxia may have interfered with respiratory function and produced death. This was the query aspect; in other words, this was the hypothesis that we were suggesting."

Now, in fact, was that the hypothesis that you were suggesting?

A. Well, when I made that statement I was interpreting these last three lines, or last four lines. When we were talking about



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2 clinical history or, I'm sorry, pathological evidence
3 I was referring to those changes that we saw on
4 pathology which indicated that there was chronic
5 hypoxia in this child.

6 Q. All right. Again, I will
7 ask the question very succinctly. When you talk about
8 the query and what you wanted to investigate is it not
9 a fair summary to say that the thing that you were
10 concerned with was the way that the hypoxia inter-
ferred with respiratory function?

11 A. No, we didn't look at it
12 that way.

13 Q. You didn't look at it that
14 way.

15 A. We were looking at hypoxia
16 which is assumed to occur on the basis of the apnea,
17 or perhaps in between the apnea episodes to produce
the brain stem damage which then causes the apnea.

18 Q. All right. Perhaps you can
19 help me then in resolving this. The words clearly
20 are your words. What did you mean on Thursday when
21 you said that:

22 "...the last four lines of the
23 autopsy report are referring to an
24 explanation for the way that the
25



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"hypoxia ... may have interfered with
respiratory function..."

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What did you mean by using those
words?

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A. That the hypoxia causes
the damage in the brain and there is changes in the
brain that are responsible for the abnormalities
in the way the child breathes, i.e. the apnea.

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Q. All right. So, the hypoxia
affects changes in the brain which then affects the
way the child breathes?

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A. That's what I've said.

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Q. All right. Is that not a
very central question in all cases of missed-Sudden
Infant Death Syndrome? Isn't that a central question
you would want to answer in any case because it may
tell you something about how it actually works?

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A. Which question?
Q. Again the question of how the
chronic hypoxia interferes with breathing control,
Doctor.

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A. Yes, we are interested to
know how the chronic hypoxia produces the changes --
we are assuming that the hypoxic changes - that the
hypoxia itself produces those changes in the brain and



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2 we are interested from there on in trying to figure
3 out how the abnormalities and respiration occur.

7
4 Q. All right. And if that
5 hypothesis were to be proved, if it were to be
6 confirmed, that would tell us a lot about how the
7 mechanism actually works in all cases of missed-
Sudden Infant Death Syndrome, wouldn't it?

8 A. One would hope so, yes.

9 Q. All right. And it was that
10 very question that you chose to highlight in this
11 particular case because you thought it was a very
12 classical case. Have I understood the relationship
now?

13 A. Well, the mechanism of
14 death is something that we are hoping to understand
15 in terms of the ongoing research that we had. So,
16 we are very concerned about this mechanism of death,
17 yes.

18 Q. Doctor, you agree with me
19 that that is something that is very central and that
20 you would want to know in any case. I am merely asking
21 you now is it a fact that given the centralness
22 of that question and the fact that you would want to
23 ask it in any case, it just so happens that in this
24 particular case, in this particular report that's
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where you chose to raise the query?

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A. Because this is such a good example. You often don't see a situation with well documented apnea.

5

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Q. All right.

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A. So, this is an example where there actually is that good clinical history.

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Q. Now, did you also tell us on Thursday last, and I believe this was when Ms. Cronk was questioning you regarding the way in which the standard autopsy form is to be used, was it not your evidence that the title was to be used for the specific autopsy findings; in other words, it was a summary of the basic pathological diagnosis.

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A. The title?

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Q. Yes.

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A. The title, usually there is going to be some variability from case to case but generally refers to the main diagnosis, yes.

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Q. All right. And you understand what I am referring to on the form when I refer to title, it is that line that appears underneath the top part of the form where you have the information about name, ward, history number, et cetera.



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2 THE COMMISSIONER: Well, it is
3 query Sudden Infant Death Syndrome in this case,
4 isn't that what you mean by title?

5 MR. TOBIAS: Yes.

6 THE COMMISSIONER: Yes, all right.

7 MR. TOBIAS: That line normally would
8 be used to summarize the pathological diagnosis?

9 A. And/or cause of death.

10 Q. And/or cause of death, all
11 right.

12 A. It depends on the disease
13 that one is talking about.

14 Q. And on Thursday at Volume
15 38 of the transcript, Mr. Commissioner, page 7559
16 you were asked this question:

17 "Q. I see. Do I take it then,
18 Doctor, that it could - it did in
19 most instances refer to the clinical
20 diagnosis of the child during life
21 but it might as well in some
22 situations relate to the findings
23 post autopsy?"

24 And your answer was:

25 "A. No. That title is for the
autopsy findings, but the main



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"diagnosis of autopsy finding, not
the clinical diagnosis."

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That is the answer that you gave?

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A. Yes, that is correct.

6

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Q. You are telling me today
it is not only for the main pathological diagnosis
but also may be the cause of death?

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A. No, I am not changing what
I said before. I said this is the pathological
picture of Sudden Infant Death Syndrome.

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Q. Well again, Doctor, I don't
want to get confused here.

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MR. SCOTT: Let him finish.

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MR. TOBIAS: Q. We have been
talking for a couple of hours about the distinction
between the pathological diagnosis and the mechanism
of death. Are you stating that it is also appropriate
to use that line for a summary of what the mechanism
of death was or do you think that it is, or is it your
evidence that it is there to be used for a summary
of the main pathological diagnosis?

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A. Well, there is certainly
going to be variability in the way it is used. It
may also sometimes be used for the mechanism of
death. Generally speaking what appears there is the



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main pathological diagnosis, which it does here.

Q. And how did you use that line in the case of Jordan Hines autopsy report?

A. The diagnosis is Sudden Infant Death Syndrome.

Q. I'm sorry.

A. The diagnosis is Sudden Infant Death Syndrome.

Q. Is that how you used that line?

A. Well, I have explained that the query referred to the mechanism of death.

Q. Well then, would you agree with me that in fact you were using that line I suppose to postulate the mechanism of death not necessarily the diagnosis?

A. That's what I have said.

Q. You certainly didn't mean to say that there was any query regarding about the diagnosis?

A. No.

Q. The diagnosis you were 100 per cent positive of?

A. Yes.

Q. And you still are today?



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A. Yes.

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Q. And there is absolutely no doubt in your mind about that?

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A. The diagnosis of missed-Sudden Infant Death Syndrome.

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Q. All right, fine. Now, I believe you also told us on Thursday that in your view the congestion in the lungs and the adema did not indicate any pneumonia, or at least did not indicate that pneumonia had played any part in the death because there was no evidence of infection and because lung congestion in adema can often be seen in SIDS. Did I understand your evidence correctly?

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A. Yes, the presence of congestion and adema doesn't suggest infection, you must see inflammatory cells.

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Q. All right. Now, again, you told me a few moments ago that with respect to the absence of any infectious - findings of any infections on the autopsy you really can't tell us whether that indicates that there was pneumonia there that he recovered from or if it was never there, you're really not sure which one it is.

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A. Well, I'm sure that at the time of death there was no pneumonia, yes.



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2 Q. All right. So that in this
3 particular case taking that evidence into view what
4 you are saying is that not only does it affect your
5 diagnosis but you don't even think that it has any
6 role to play in the explanation of the mechanism of
7 death?

8 A. I think you're referring
9 now to the congestion and adema line?

10 Q. Yes.

11 A. No, it probably didn't play
12 any role.

13 Q. All right. So that we can
14 rule that out entirely, is that fair?

15 A. Yes.

16 Q. All right.

17 A. As far as we know.

18 Q. Now, again, I'd like to
19 just spend a moment discussing with you the apnea
20 hypothesis and particularly I am interested in the
21 evidence that you gave at page 7667 of Volume 38.
22 Actually, if you refer, Mr. Commissioner, to page
23 7666, Ms. Cronk asked this question:

24 "Q. And then you continue in the
25 sentence that I began to read:

'This pathological evidence, in



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"'conjunction with the chemical history, makes the diagnosis of a missed-SIDS a possibility.'

Doctor, you have told us what the pathological features were: indeed you have set them out expressly in the report that you were referring to. What elements of the clinical history in the case of Jordan Hines were you referring to in that sentence?

A. May I go over that sentence?

Q. Yes.

A. This is the way I would put it together.

This pathologic evidence, referring to the chronic hypoxia, in conjunction with the clinical history, referring to the recurrent apnea, makes the diagnosis of missed-Sudden Infant Death Syndrome, implying the missed-Sudden Infant Death Syndrome to mean in support of the apnea hypothesis as a possibility or hypothesis for the mechanism of death."



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2 Now, in that exchange are you really
3 saying that the pathological evidence that was present,
4 the chronic hypoxia and the other pathological markers,
5 together with the history, the apneas, may make the
6 apnea hypothesis in explaining the mechanism of death
7 in SIDS a possibility. Is that really what you're
8 saying?

9 A. I'm saying that the mechanism
10 of death likely is the apnea hypothesis, yes.

11 Q. All right. Can you tell
12 me again, as briefly as you can, what precisely the
13 apnea hypothesis is?

14 A. Well, when I refer to the
15 apnea hypothesis I am referring to the suggestion that
16 there is an abnormal control of respiration and
17 that this abnormal control of respiration produces
18 essentially instability in the way the nervous
19 system controls breathing. This instability then
20 produces the apnea and there are various factors
21 that may trigger the instability. Some of these
22 factors I have mentioned several times. It might
23 be a sleep disturbance, it could be a minor upper
24 respiratory tract infection or it could be something
25 else, but with an unstable respiratory system, as
shown by the evidence that we found at autopsy in
this case and on the basis of evidence that we have



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found in other cases this I think is supported.

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Q. All right. Now, do you recall telling Ms. Cronk that you weren't particularly concerned with the presence of bradycardia in this child?

A. Well, I believe I said that there was an association between bradycardia and the apnea.

Q. Yes.

A. A fairly good association.

Q. All right. Well, I will put it in that context because really that is the fairer way to put it to you. As I recall your evidence you were saying that bradycardia can quite often be seen with apnea, so, you weren't particularly concerned or puzzled by the presence of bradycardia in this child?

A. Yes, that's been my experience.

Q. All right. Do I also understand that your evidence was however the presence of tachycardia is somewhat more unusual and that you did find, I think your words were interesting?

A. Yes.



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2 Q. All right. Now, with
3 respect to this apnea hypothesis, did I understand
4 you correctly in giving your evidence Thursday to
5 indicate that the apnea hypothesis if proved could
6 explain the existence of both bradycardia and
7 tachycardia in association with the apnea?

8 A. Yes.

9 Q. All right. And is there
10 some element of commonality there, are you saying
11 that this abnormal - neuron centres in the brain
12 has something to do not only with respiratory
13 function but with cardiac function as well?

14 A. Yes, I have said the dorsal
15 vagal nucleus of the vagus nerve plays a role
16 in both.

17 Q. And therefore it would be
18 somewhat important in proving that hypothesis to
19 show that there was no abnormality in the conducting
20 system which would otherwise account for the tachycardia?

21 A. It might account.

22 Q. Have I got that part
23 correct?

24 A. It might account for the
25 tachycardia.

Q. Well, no, no, let me rephrase



1
2 that. While you were interested in pursuing the
3 conduction study was that if you found that there
4 were no abnormalities at all you could dismiss
5 conduction problems as an explanation for the
6 tachycardia?

7 A. Within the limits of our
8 morphological ability. As I have suggested there
9 could be other things beyond our eyes in terms of
10 abnormalities of the conducting system.

11 Q. I understand.

12 A. It could be electrical, it
13 could be other things, but in terms of pathology that's
14 what I said, yes.

15 Q. I understand. But within
16 those limits, if you could account or rule out the
17 possibility of conducting problems then your hypothesis
18 that it was the neural centres in the brain accounting
19 for both respiratory and cardiac function, that
20 would take on some more credibility?

21 A. Well, I don't think it is
22 just my hypothesis there is a great deal of interest
23 around the world in the situation now, I think that
24 is where the major focus is in this area in terms of
25 Sudden Infant Death Syndrome.

Q. All right. Doctor, that's



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2 not what I asked though. I withdraw the comment
3 that it is your hypothesis. Is it true though that
4 if that could be shown that hypothesis would be
5 somewhat more credible?

6 A. It would be another, yes;
7 it would be another piece of information.

8 Q. All right. Now, you also
9 told us on Thursday, and I believe that Mr. Commissioner
10 put this question to you specifically, and I am
11 referring now, Mr. Commissioner, to Volume 38, page
12 7669 at line 9:

13 "Q. Well, Doctor, that is a very
14 long answer and I am not sure that
15 I have at all understood it fully.

16 THE COMMISSIONER: It is a medical
17 answer to what was essentially a
18 question in English.

19 The question was what did you mean
20 by a possibility? Does that
21 conceivably mean that there is some
22 other possible explanation? I would
23 think that is what it meant but I
24 may be wrong."

25 And your answer, Doctor:

"Sure. The other possibility would



1 "be that there could be something
2 wrong with the conduction system."

3 Do I read that right in drawing
4 this conclusion that by studying the conducting system
5 you could have possibly found that part of the heart
6 arrhythmias exhibited in this child were a function
7 of not the apnea hypothesis but of problems with the
8 conducting system.

8 A. It is conceivable, yes.

9 Q. Okay. Now, I believe Ms.
10 Cronk asked you whether you were aware of the fact
11 that that conduction system was never carried out and
12 you indicated that you were aware of that.

12 A. Yes.

13 Q. All right. Now, this is
14 where I start to misunderstand your evidence, so
15 please correct me if I'm wrong. If one of the reasons
16 for doing the conduction study was to assist you
17 in testing your hypothesis by seeing whether there
18 were conduction problems and if that study was never
19 done, how can you rule out the possibility that the
20 arrhythmias are not accounted for by the apnea
21 hypothesis but by conduction problems?

21 A. Well, there are many things
22 that we can't rule out and this was an academic
23 exercise in terms of trying to better understand what
24
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1
2 was going on in terms of the neural control of both
3 respiratory and cardiovascular function. It is
4 possible that there could be something in the
5 conduction system but my opinion is that it is
6 unlikely.

7 Q. All right, and I respect
8 that opinion. I am simply asking you whether you
9 agree with me that in the absence of those studies
10 being done it is still a possibility it cannot be
11 ruled out?

12 A. Oh, yes.

13 Q. I am sorry?

14 A. Yes.

15 Q. Okay. Now, Doctor, are
16 you familiar generally with the clinical symptoms of
17 digoxin toxicity?

18 A. No. No, that's my area of
19 expertise.

20 Q. Have you had any opportunity
21 to read any of Dr. Rowe's evidence in that regard?

22 A. No, I haven't read his
23 testimony.

24 Q. All right. Well, I will
25 only ask you one very short question. Is it your
understanding, given your limited knowledge of the



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clinical markers of digoxin toxicity, that one of
them is heart arrhythmias?

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A. You would really have to
ask Dr. Rowe that question, he is the expert in that
area I'm not.

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Q. Okay, fine. How much
expertise and information do you have with respect
to the clinical problems commonly seen when one has
conduction problems in the heart?

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A. My interest and experience
is related to the morphological basis for the
conduction defects rather than the conduction defects
per se in terms of electrocardiographic analysis.

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Q. All right.

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Would you be able to recognize
in a clinical setting the symptoms of conduction
problems or an abnormality in the conduction system?

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A. I do not know if I could
or could not. It would depend on the subtlety of
the abnormality, I presume.

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Q. I take it, then, that you
could not really help me if I asked you to compare
the two; that is, the clinical effects on heart
rhythm of digoxin toxicity and the clinical symptoms
of problems in the electroconducting system of the
heart?

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A. No. You would have to
ask a cardiologist that question.

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Q. I understood your evidence
on Thursday to be - and I asked you this a few
moments ago - that, although you were not particularly
concerned with the presence of bradycardia, tachy-
cardia arrhythmias are not common with SIDS; is
that correct?

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A. From my perspective, that
is right.

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Q. In fact, it was the
presence of those tachycardias that accounts for
some of the special interest in this case and the



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2 query and the desire to do the conduction studies?

3 A. It was one of the aspects
4 but there were others, as I mentioned before. It
5 was quite a characteristic case and well documented
6 with the apnea, so we were interested in it as an
7 example of the Sudden Infant Death Syndrome.

8 Q. Are you familiar with some
9 of the references in the literature to the role that
10 arrhythmias are seen to play with respect to Sudden
11 Infant Death Syndrome or missed-Sudden Infant Death
12 Syndrome?

13 A. There is considerable
14 literature on the subject.

15 Q. Do you agree with me, as
16 a general proposition, that, in particular, the Kelly
17 and Shannon two-part article which Mr. Scott produced
18 would seem to indicate that arrhythmias generally
19 are seen only rarely as accompanying Sudden Infant
20 Death Syndrome?

21 A. There is a great deal of
22 controversy about arrhythmias in terms of Sudden
23 Infant Death Syndrome and the role of the heart in
24 the Sudden Infant Death Syndrome.

25 Q. Have you had an opportunity,
doctor --



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MR. SCOTT: Let him finish.

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MR. TOBIAS: Q. Were you

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finished, doctor?

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A. Yes.

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MR. TOBIAS: I thought he was,

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Mr. Scott.

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Q. Have you had an opportunity,

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doctor, to read the Shannon and Kelly two-part
article which was in Exhibit, I believe Exhibit 161?

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A. The Review article?

11

Q. I'm sorry?

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A. Which exhibit is it?

13

Q. Exhibit 161. I think it

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was the article taken from The New England Journal
of Medicine, "SIDS and Near-SIDS, First of a Two-
part Series."

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A. It is certainly one of

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many articles that have been written on the subject.

18

MR. TOBIAS: Mr. Commissioner, I am

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in your hands. I look at the clock and note that I

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am just entering this area and this may be an

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appropriate time to take a break.

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THE COMMISSIONER: All right. We
will take fifteen minutes.

23

MR. TOBIAS: Thank you, sir.

24

--- recess.

25



--- on resuming.

THE COMMISSIONER: Yes, Mr. Tobias.

MR. TOBIAS: Thank you, Mr.

Commissioner.

Q. Dr. Becker, just prior to the break, we were having a discussion regarding the appearance of tachycardia in association with apnea, and I believe you mentioned to me that that was an unusual phenomenon, not something that you commonly see with respect to cases of Sudden Infant Death Syndrome.

A. I said, from my perspective, yes.

Q. From your perspective, yes.

I believe, on Thursday, you were asked by Miss Cronk whether you meant to indicate, in the last four lines of your report - and I am referring now to the final autopsy report - that arrhythmias per se were inconsistent with a diagnosis of missed-SIDS, and I believe - correct me if I am wrong - that your evidence was that you were not indicating that arrhythmias per se were inconsistent but you were particularly concerned with the tachycardia situation; is that correct?

A. I think that is approximately



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correct, but I cannot recall the exact wording, what was said.

Q. Let me ask you specifically. Do you take the position that arrhythmias per se are inconsistent with a diagnosis of missed-Sudden Infant Death Syndrome?

A. We really do not know that at the moment. There is no pathological documentation, to the best of my knowledge, that there are histological abnormalities of the conduction system in the Sudden Infant Death Syndrome.

Q. I asked you before if you are familiar with references in the literature to the question of arrhythmias and specifically asked you to look at Exhibit 161, which was the Shannon and Kelly two-part article.

In particular, I am reading from page 963 of that article, under the heading "Cardio-vascular Factors", which appears about half-way down the page. It says:

"Arrhythmias account for a small number of cases of SIDS and recent evidence from babies with near-SIDS suggests an alteration in control of the heart rate."



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Then, in the second paragraph, the article goes on to say:

"Arrhythmias, a common cause of sudden death in adults, account for only a small fraction of cases of SIDS. A prolonged QT interval has indeed been identified before death or resuscitation, but in only three cases."

Do you agree with those observations?

A. I do not think it is a matter of whether I agree or not. He is stating his review of the literature with respect to that. That is a fair summary of that literature.

Q. Am I correct in assuming or in stating that it would appear, from those quotations, that what the authors are saying is that, indeed, arrhythmias per se are only rarely seen in cases of SIDS and, when they are seen, they are marked by a prolonged QT interval? Is that a fair reading of that?

A. I think that is an oversimplification.

Q. How would you read it, then?



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A. There are certainly other arrhythmias besides prolonged QT interval that have been reported in Sudden Infant Death Syndrome. That is one example of such an abnormality.

Q. Are any of those other arrhythmias specifically referred to in this article, to your knowledge, or is the prolonged QT interval the only one that they deal with?

A. I think, in passing, they have mentioned several things. For example, at the bottom of that page, it says:

"If defective autonomic cardiovascular control predisposes infants to SIDS, abnormalities in cardiac rate or variabilities should be expected."

So, they are there suggesting that it is probably not only QT, but there may be other things involved, too.

Q. Yes. And you would agree that they are suggesting that those other things may appear if defective autonomic cardiovascular control predisposes infants to SIDS? They are not saying that it does but, if it does, then you might expect to see other arrhythmias?



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A. It is not known. It is suggested that the autonomic control may be effective in the cardiac rate abnormalities.

Q. But, doctor, it is a simple question. Are they not postulating that as a question: "If the defective autonomic cardiovascular control predisposes infants to SIDS..."?

Do you agree with that, they are posing it as a question? If that is the case, then you might expect to see other arrhythmias. They do not state that that is something that they do see or that there is any evidence of.

Do you agree with me?

A. There is some evidence for it, yes.

Q. In this particular article, doctor?

A. Well, you cannot just take this article in isolation of the literature.

Q. I recognize that. I am just asking you about this article now, however.

They seem to be addressing themselves, when they talk about arrhythmias, only to the prolonged QT interval.

A. I am not so sure about that



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because "If defective autonomic cardiovascular control predisposes infants to SIDS, abnormalities in cardiac rate or variabilities should be expected."

Q. So, if that condition is met, then other arrhythmias may be expected; do you agree with that?

A. Yes.

Q. And are you also familiar with the article that appeared in The British Medical Journal on April 2, 1983 and which has been marked as Exhibit 180 before this Commission?

A. 180?

Q. Yes.

A. Yes.

Q. You are familiar with that article? Have you read it?

A. Yes, I think I have.

Q. All right. And you are familiar with the methodology; that is, where a sample of infants, some of whom ultimately succumb to Sudden Infant Death Syndrome, were monitored in a 24-hour monitoring early in life to see if they were predisposed or showed signs of abnormal arrhythmias or prolonged periods of apnea?

A. Yes.



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Q. I would ask you to look at Table 3 appearing in that article, which is on the third page of the article.

Do you agree with me that, from that table, it would appear that, in 29 cases where infants ultimately succumb to SIDS, that they did not find in any of the 29 cases any evidence of arrhythmia or pre-excitation?

A. That appears to be so, yes.

Q. They say, in the Conclusions to the article, which appear on the second-last page, or, rather, they say at the Discussions to the article, that it would appear, from these results, that the presence of a long QT interval does not appear to be in any way indicative of Sudden Infant Death Syndrome.

A. Where is that?

Q. Specifically, under "Results", starting with the last paragraph in the first column on the left-hand side of the page, where it shows:

"Figures 1 and 2 show that none of the recordings obtained in 28 of the 29 infants who suffered the



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Sudden Infant Death Syndrome had a prolonged QTc Index compared with those obtained in the controls."

A. Yes.

Q. "In one case, the ST segment of the waveform was obscured by artefact and the QT interval could not be measured.

The one-sided 95% confidence interval for the proportion of infants who suffered Sudden Infant Death Syndrome and had prolonged central apnoea, ventricular pre-excitation or a prolonged QTc Index on a 24-hour recording was 0-10%; for multiple ventricular premature beats of parasystolic origin, it was 0-15%; hence, these abnormalities could in no way be predictive of Sudden Infant Death Syndrome except in a very small proportion of cases."

Now, is that a statement that you agree with in terms of their own interpretation of the results?



1
DD12 2 A. In terms of their inter-
3 pretation, yes.
4 Q. You do?
5 A. They are interpreting their
6 own results in a way which seems fair.
7 Q. Again, do you agree with
8 me that, in that particular article - and I have had
9 the benefit of reading the entire article - they
10 seem to be involving themselves with the question of
11 arrhythmias generally --
12 A. Yes.
13 Q. -- and come to the
14 conclusion that arrhythmias, generally, are not
15 a very reliable indicator of what infants one might
16 expect Sudden Infant Death Syndrome to occur in?
17 A. Except, those same authors
18 have reported exactly the reverse.
19 Q. In which article was that,
20 doctor?
21 A. They have done it several
22 times. They have recently had a symposium on
23 Sudden Infant Death Syndrome; they have talked about
24 increased quantities of tachycardia, for example, in
25 children who have died in Sudden Infant Death
Syndrome. Then, I think there is another small



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2 article that they wrote some time ago.

3 Q. How recent are the
4 articles, doctor?

5 A. The symposium has been
6 very recent. It has just been published in the last
7 couple of months.

8 Q. That would be after
9 April 2, 1983?

10 A. I believe so.

11 Q. Perhaps what you can do is
12 give a copy of that article, if you are aware of it,
13 to your counsel, Mr. Scott, who might then produce
14 it for me.

15 Is that agreeable, Mr. Scott?

16 MR. SCOTT: If it is produced to
17 me, I will produce it to you.

18 A. This other article that
19 they published in 1977 has also suggested that
20 cardiac abnormalities are present in Sudden Infant
21 Death, so there seems to be some variability of
22 opinion from that group in terms of the opinion
23 expressed in this particular article.

24 MR. TOBIAS: Q. What is your present view
25 of that question? I ask you again, do you think
that cardiac arrhythmias generally are indicative or



DD14 1
2 inconsistent with Sudden Infant Death Syndrome diag-
3 nosis?

4 A. The question has not been
5 resolved. That is why it is being investigated from
6 so many different directions. I think that it is
7 conceivable, that is one possibility, certainly, that
8 in some instances, arrhythmias may be a problem,
9 probably in a small number of cases.

10 MR. OLAH: Mr. Commissioner, I
11 wonder if the doctor would assist us.

12 Is this a 1982 or a 1983 symposium?

13 THE WITNESS: A 1982 symposium,
14 published in 1983.

15 MR. OLAH: Thank you.

16 MR. TOBIAS: Q. It was an 1982
17 symposium, was it?

18 A. Yes.

19 Q. Would that have been given
20 before or after the article in The British Medical
21 Journal was written?

22 A. Probably that article was
23 submitted prior to this meeting. In other words, it
24 takes some time for an article to get published.

25 Q. Do we know when it was
submitted?



1
DD15 2 A. Do we know when this
3 article was submitted?
4 Q. Yes.
5 A. It probably says on it.
6 Q. Perhaps you can assist me
7 with that, doctor.
8 A. No, it actually does not
9 say when it was received or when it was submitted, as
10 far as I can tell. It says: "Accepted February
11 1983".
12 Q. So, you would assume it
13 had to be submitted some time before that?
14 A. It seems like a fair
15 assumption.
16 Q. Would you agree with that,
17 doctor? Would that date of February 8, 1983 be
18 before or after the symposium that you have just
19 referred to?
20 A. It would have been after
21 the symposium. They presented the same data there,
22 too. It is in this article.
23 Q. Doctor, with respect to
24 Exhibit 103A, the final autopsy report, again, when
25 you refer, in the last four lines, to "The pathological
evidence in conjunction with the clinical history



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makes a diagnosis of a miss-SIDS a possibility;
however, this does not explain the arrhythmias", again,
it is your evidence that the statement "this does
not explain the arrhythmias" is only postulated because
of your desire to test the apnea hypothesis; is that
a fair statement?

A. The desire to do the
conduction system in the heart, you mean?

Q. Yes.

A. Yes. It is an academic
interest to pursue that system anatomically, yes.

Q. And what you were interest-
ed in specifically at that time was the question of
tachycardia in concert with the apnea?

A. Yes.

Q. I beleive you told Miss
Cronk on Thursday that, at the time of the autopsy,
other than the unlikely possibility of a conduction
problem, there was no other cause of death which
you considered appropriate, other than missed-SIDS;
am I correct in summarizing that evidence?

A. Within the confines of a
standard autopsy.

Q. And within the confines
of the pathological factors?



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A. Within the confines of a standard autopsy, yes.

Q. At that time, you would not have directed your mind to any factors relating to digoxin toxicity, would you?

A. At the time the autopsy was done?

Q. Yes.

A. No.

Q. There was no need, as far as you knew, to even be concerned with that question?

A. That is correct.

Q. Would you agree that, had you known that digoxin was found in the tissue at that time and had you known the level, that was a question that you would have had to consider?

A. In terms of the diagnosis?

Q. No, in terms of the mechanism of death.

A. I think I said before that all those factors would have to be taken into consideration, yes - all the information that was available.

Q. Right.

Doctor, again dealing with Exhibit 103A, which is the final autopsy report, at



1
DD18 2 page 2 of the report, I notice two headings; "Clinical
3 Diagnosis" and "Pathological Diagnosis".

4 Can you tell me the standard
5 manner in which the section entitled "Clinical
6 Diagnosis" is to be used? What is your understanding
7 of what should appear there?

8 A. There is going to be some
9 variability in that section. It is going to depend
10 on a variety of factors but, essentially, it is an
11 attempt to get a summary of what the clinicians are
12 feeling about the case.

13 Q. In fact, it is an attempt
14 to summarize what the clinician's view of what the
15 likely diagnosis was, based on clinical findings; is
16 that fair?

17 A. Yes.

18 Q. With respect to that
19 section headed "Pathological Diagnosis", how is that
20 intended to be used?

21 A. To summarize the main
22 pathological diagnosis.

23 Q. We know that, in the case
24 of Jordan Hines, one of the things that was suspected
25 by Dr. Rose, and I believe by Dr. Fowler - although
I am not completely positive about his evidence in this



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regard - was some kind of viral infection affecting
the hearg muscle.

A. Yes.

Q. That would have been some
type of sepsus?

A. Yes.

Q. That was suspected but they
were not sure?

A. Yes.

Q. The other possibility -- I
should not say the "other possibility" because there
may be several others, but one other possibility, as
I understand it, was some type of pneumonia in the
left lower lobe?

A. Yes.

Q. Again, that was suspected
but they were not sure?

A. Yes.

Q. Is that precisely why
question marks appear in the "Clinical Diagnosis"
in front of "sepsus" and "left lower lobe pneumonia",
because they were not sure; there was some question
in their minds?

A. I am not sure if that was
the case or not, but it could have been, yes.



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Q. Do you know who prepared that part of the report? Was it yourself or Dr. Sugar?

A. I do not know which of us was involved in that. Usually, as I said before, it is done together.

Q. Assuming that it was Dr. Sugar, would you take responsibility for that? Was it done at your direction?

A. Yes.

Q. So, you would have told her - perhaps "told" is too strong a word. You would have given some indication that the sepsus and the left lower lobe pneumonia were only possibilities and that they were not certain in their own minds; they would not make that a positive clinical diagnosis; correct?

A. Yes.

Q. With respect to the pathological diagnosis, I think you have already told us that the question mark in front of "Sudden Infant Death Syndrome" does not go at all to the pathological diagnosis but only the mechanism of death.

A. Yes.

Q. Yet you have used the



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same symbol, the question mark?

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A. Yes.

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Q. Can you explain that for us? Is there any inconsistency between the two?

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A. Yes, because our interest in Sudden Infant Death Syndrome was in the mechanism of death and that query was referring to that particularly.

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Q. I take it, then, your answer is, yes, there is some inconsistency?

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A. Yes.

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Q. Can you explain the inconsistency?

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A. I think I already have. The clinical diagnosis was listed according to the information that was available and, in terms of the Sudden Infant Death Syndrome, we were concerned about the mechanism of death.

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Q. I understand that, doctor. What I am saying is, it would appear that, under the two sections, the use of the question mark is put two different uses. That is the inconsistency.

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A. They are usually done at different times. The clinical diagnoses are summarized first and, then, pathology is looked at



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and done separately, so it doesn't surprise me that
it could be used in a different way.

Q. But, doctor, would not that
part of the report be prepared at the same time,
the actual preparing of the report?

A. The clinical aspects would
have probably been done previous to the autopsy part.

Q. So, are you saying that
you could have directed your mind to the language to
use under "Pathological Diagnosis" at a time other
than the time at which you directed your mind as to
what language to use under "Clinical Diagnosis"?

A. That could happen.

Q. You say that is a possi-
bility. Do you have any independent recollection
that that was, in fact, the case?

A. No. I could not be sure
about that.



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Q. Now, you also told us on

Thursday, in questioning from Miss Cronk, that there were some discussions that you had had with Dr. Vera Rose before she gave her evidence, but that those discussions did not relate very directly with respect to your conclusions regarding the cause of death. Do you recall that evidence?

A. The discussion with Dr. Rose was prior to her testimony and involved one comment, which I covered this morning. That comment was, she had said she had not thought of Sudden Infant Death Syndrome at the time that the child arrested.

Q. And that was the only discussion you had with her?

A. Yes.

Q. Why would she have mentioned to you that she hadn't thought of Sudden Infant Death Syndrome?

A. She was obviously aware from the report that that was my diagnosis.

Q. You are saying that this conversation took place before she gave her evidence, but recently?

A. During the time she was giving her evidence.



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Q. And her comment was that she was not aware of the Sudden Infant Death Syndrome diagnosis?

A. At the time of the cardiac arrest, yes.

Q. At the time of the cardiac arrest?

A. Yes.

Q. And I presume that came up because there was some discussion between you and her regarding Sudden Infant Death Syndrome?

A. No, there wasn't, she just made it as a passing remark.

Q. I see, and that wasn't in response to anything that you might have said or told her?

A. No.

Q. And that was the sum total of that conversation, was it?

A. Yes.

Q. Now, are you aware Doctor that the evidence that Dr. Rose gave to this Commission when she appeared before it, was that it was her hypothesis, and I stress the word hypothesis, because I want the question to be fair to you, that she



1
2 assumed in choosing the language you used in the
3 preliminary and final autopsy report, that you were
4 not aware of the specific details of the kinds of
5 arrhythmias that Jordan Hines had suffered. In fact,
6 had you been aware of the specific details that in
7 fact it was just ventricular fibrillation and there
8 wasn't any abnormal ventricular fibrillation, that
9 you wouldn't have used the words:

10 "However this doesn't explain the
11 arrhythmias."

12 Are you aware that is the explanation that she gave?

13 A. Yes.

14 Q. Do you know where she got that
15 explanation from?

16 A. No.

17 Q. Certainly nothing that you said
18 to her?

19 A. No.

20 Q. And Doctor, with respect to
21 Exhibit 150, which was an exhibit put to you by Miss
22 Cronk, and I think it was a coroner's investigation
23 statement with respect to the death of Jordan Hines:
24 the date of that report, or that statement, is April
25 7th, 1981. Are you aware of that, it appears down in
the bottom left-hand corner of the page?



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A. Yes.

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Q. And do you know, do you have

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any information whether at that time, at the time this

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coroner's investigation statement was prepared by

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Dr. Tepperman, he had had an opportunity to study and
review your final autopsy report?

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A. My assumption was that infor-

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mation was available to him, yes, but he would have

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to speak for himself, I don't know if it is a fact or

10

not.

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Q. In any event, we know that at

12

the time this statement was signed, the final report

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had already been prepared and signed by you?

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A. Yes.

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Q. And I believe that your evidence

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was that you don't know what happened to it after you

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prepared and signed it, because of the intervening
police investigation?

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A. My understanding it was going

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to the police, yes.

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Q. All right, but you have no

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personal knowledge of it?

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A. No, I don't.

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Q. It is clearly though, because

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you have chosen the words "your understanding", it

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was your assumption that a copy of that report somehow got into the hands of the authorities, and when I say the authorities I mean the police and the coroner's office?

A. Yes.

Q. And if it did get into their hands, I think it would be a fair assumption, would it not, that in all likelihood Coroner Tepperman, or Dr. Tepperman read that report?

A. I would think so, yes.

Q. So that in all likelihood he would have had some familiarity with your views as expressed in the final autopsy report at the time this coroner's investigative statement was completed?

A. It is a lot of assumptions, but I presume so.

Q. You told us you were not aware of the cause of death listed in this particular document. I believe your evidence last Thursday was since you were not aware, there was some surprise, you did not know why he would have come to this conclusion. Is that a fair summary?

A. Yes.

Q. All right. Now, are you aware Doctor, have you ever heard that at a later date in



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time, in December of 1981, it was Dr. Tepperman's opinion in fact that the cause of death was not sick sinus syndrome, but in fact was digoxin intoxication?

A. I only was aware of that through the press. I don't think - I was definitely not told personally of that fact, no.

Q. You are aware of it though, are you not?

A. Yes.

Q. And again since that statement was made presumably in December, after the time that Exhibit 150 was signed, we can again I think make a fair assumption that in all probability he had had the benefit of seeing your autopsy report, or at least it was available to him?

A. I am making that assumption, but I don't know.

Q. Does it surprise you that Dr. Tepperman came to that conclusion?

A. Since sick sinus syndrome is not a pathological diagnosis it is surprising.

Q. More specifically what I am referring to is does it surprise you --

THE COMMISSIONER: There is a total failure of communication somehow between Counsel



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and the witness and perhaps I am not just hearing right. I thought he was asking whether it surprised you that he came to the conclusion with respect to digoxin poisoning.

MR. TOBIAS: That was my question, Mr. Commissioner.

THE COMMISSIONER: Well it surprised you he came to the sick sinus syndrome.

THE WITNESS: Yes.

THE COMMISSIONER: It wasn't the question that was asked but it is interesting to have that answer.

THE WITNESS: I am sorry.

THE COMMISSIONER: Now you could answer the other question. Does it surprise you that he came to the conclusion of digoxin overdose?

THE WITNESS: Well I don't know what the evidence was for him to come to that conclusion so I can't ---

THE COMMISSIONER: All right, you are not so surprised about that one.

MR. TOBIAS: Mr. Commissioner, subject to later proof when Dr. Tepperman is called I would like to tender this as an exhibit. It is Proof of Claim Statement by a Physician on the Standard



Becker, cr.ex.
(Tobias)

2-1 2 Life Insurance Policy dated December 17th, 1981.

DM/cr 3 THE COMMISSIONER: That will be
4 Exhibit 199.

5 ---EXHIBIT NO. 199: Proof of Claim Physician's
6 Statement re Jordan Robert Hines,
7 December 17th, 1981.

8 MS. CRONK: I'm sorry, what was
9 the exhibit number for that?

10 THE COMMISSIONER: Exhibit 199.

11 MR. TOBIAS: Q. Doctor, with
12 respect to Exhibit 199, it is obvious from that
13 exhibit that at some point in time, namely December
14 of 1981, Dr. Tepperman did come to the conclusion
15 with respect to the mechanism of death which differs
16 from your own conclusion.

17 THE COMMISSIONER: Some time before
18 that date I take it.

19 MR. TOBIAS: Well I said some time
20 before then, but at the very latest some time in
21 December of 1981.

22 THE COMMISSIONER: Okay.

23 MR. TOBIAS: Q. Do you agree with
24 that, that he did ---

25 THE COMMISSIONER: I do.

MR. TOBIAS: Q. Thank you, sir.
Now you remember our discussion earlier, Dr. Becker,



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2 with respect specifically to the distinction between
3 mechanism of death and pathological diagnosis.

4 I believe you did tell me that on
5 the basis of other factors that had to be taken
6 into consideration, which might not show up in
7 pathology, one would have to give some weight to
8 those other factors, and even you would possibly come
9 to a different conclusion if those other factors
10 justified it. That is a different conclusion with
11 respect to the cause of death. Do you recall that
12 conversation?

13 A. Yes I think all the factors
14 would have to be taken into consideration, yes.

9 15 Q. Now is it fair to say, and
16 please tell me if in your opinion it is not, that in
17 coming to his conclusion Dr. Tepperman, being a
18 coroner, exercises his responsibility somewhat
19 differently than you would exercise your responsibility,
20 and is free to take a broader and more general view
21 of the circumstances than you are?

22 A. I don't know if that is
23 true or not.

24 THE COMMISSIONER: That sounds like
25 fighting words to me.

Q. Well you have told us Dr.



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Becker that you view your responsibility as filling out an autopsy report which gives the pathological mode of death, comes to a conclusion regarding pathological diagnosis based upon pathological findings?

A. Plus any other facts that become available that we can consider in terms of making a cause of death, yes.

Q. Again I want to be very specific regarding this difference between the mechanism of death and the pathological diagnosis. A factor might come to your attention which might cause you to change your view with respect to the mechanism of death. But if the pathology bore out your diagnosis of missed-SIDS that pathological diagnosis would stand, is that not correct?

A. The pathological diagnosis of Sudden Infant Death Syndrome, yes, would stand.

Q. Now Dr. Tepperman on the other hand does not confine himself only to the pathological findings. Do you agree with that?

A. No, I didn't say I confine myself only to pathological findings.

Q. I am not suggesting that you did, sir, listen to the question.

A. Okay.



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Q. I said Dr. Tepperman doesn't
confine himself only to the pathological findings,
is that not correct?

A. I don't know what Dr.
Tepperman does.

Q. All right, let's not say
Dr. Tepperman. A coroner generally will not confine
himself strictly to pathological findings. Do you
agree with that proposition?

A. Presumably he takes other
factors into consideration too, and one of which would
be the autopsy report.

Q. Correct, and he is just
not simply trying to put a pathological label on the
mode of death, but he is very interested, keenly aware
of the mechanism of death, or what we as lay individuals
would call the means of death. Do you agree with
that proposition?

A. I think the pathologist
is also aware of the mechanism of death.

Q. Well I agree with you,
Doctor, but unless I have missed the last four
days of evidence, or the last two days of evidence,
I thought that you were saying that there was this
distinction between coming to a pathological diagnosis



Becker, cr.ex.
(Tobias)

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and coming to a conclusion regarding the mechanism of death, and what you were primarily concerned with was that pathological diagnosis.

A. Both factors are important, yes.

Q. But are you primarily concerned with the pathological diagnosis?

A. Both are intertwined, it is difficult to separate one from the other, although they are distinct.

Q. All right, and you wouldn't care to grade them for us would you, Doctor?

A. No.

Q. Well in that regard I suppose your evidence will stand.

My question simply is this, do you agree with me that with respect to the coroner generally, he is not solely interested in, or even particularly interested in for that matter, in the pathological cause for death, but he is interested in the broader question, the mechanism for death, what caused the death, why did that person die. Do you agree with that proposition?

A. I think he has to take into consideration the pathological findings in reaching



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that conclusion.

Q. Unquestionably he would.
What I am saying is, he goes beyond that, doesn't he?

A. I don't know what he does
in terms of reaching that conclusion.

Q. All right. Now on Thursday
Ms. Cronk put to you Exhibit 198, which was as I
understand it, and correct me if I am wrong, Doctor, is
a document prepared by your own Dr. Mancer.

THE COMMISSIONER: Exhibit 198?

MR. TOBIAS: Yes, sir.

Q. And as I understood the
exchange between yourself and Miss Cronk Exhibit
198 was prepared as a consequence of a request from
the Metropolitan Toronto Police wherein they gave Dr.
Mancer a list of babies and the dates of death and
autopsy numbers and asked for some expansion on the
cause of death. Have I understood that evidence
correctly?

A. I believe I said I wasn't
aware of the mechanism involved in the creation of
this list.

Q. Right. You do agree with
me though that it was prepared by Dr. Mancer?

Q. I don't know for sure if it



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was or was not.

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Q. All right, do you agree
that it was prepared by the Hospital for Sick
Children?

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A. I presume it was, but I
wasn't involved in the preparation to the best of
my knowledge.

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Q. Do you agree with me it had
to be prepared based upon certain information which
would have been in the hands of the Pathology
Department of the Hospital?

A. I assume so, yes.

Q. Doctor, I couldn't have
prepared it, do you agree with that?

A. I think so.

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Q. Thank you. Now with respect to Jordan Hines' case as it is referred to in Exhibit 198, Miss Cronk I believe put to you the proposition that the language used on Exhibit 198 seemed to indicate that there might have been some question in Dr. Mancer's mind, or in the mind of whoever prepared this document, as to your faith in the diagnosis of Sudden Infant Death Syndrome. Do you recall her putting that question to you?

A. Yes.

Q. Do you recall what your response was?

A. Actually there is not much difference between that and the autopsy report, crib death and Sudden Infant Death Syndrome, they co-relate quite well, and the bradycardia as well.

Q. Yes, they co-relate excellently Doctor, and I notice under the column "Cause of Death" Exhibit 198 says "undetermined".

A. Well, that is what we were talking about in terms of mechanism of death.

Q. I see. You believe that the cause of death on Exhibit 198 in the reference to "undetermined" is a reference to the mechanism of death, is it, not the diagnosis?



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A. Yes.

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Q. And that was exactly the same question you had in mind, is it not?

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A. Yes, we were talking about apnea as the cause of death.

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Q. So the two are completely consistent?

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A. Well they are not inconsistent.
Q. Doctor, didn't you tell us, and correct me if I am wrong, sir, that you did not verbally communicate your findings to any of the other pathologists, and there was no particular discussion regarding this question?

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A. I didn't say that, I said I couldn't recall any specific discussion of the particular cases.

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Q. Well then I won't suggest that you didn't discuss it with them, I will simply suggest that you don't remember discussing it with them. Is that fair?

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A. Yes, that is what I said.

Q. And I take it that that is

broad enough to include that you don't recall discussing your hypothesis and your query with whoever it was that prepared this exhibit?



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A. I don't recall such a discussion, no.

Q. Now the question that I asked some five minutes ago, which has not been answered yet Doctor, was, do you recall what your response to Miss Cronk was?

A. Not exactly, approximately I do though.

Q. I refer you, Mr. Commissioner, to Volume 38, page 7695 of the daily transcript at page 5:

"Q. Would you agree with me, Doctor, that that language suggests that there is some question as to whether or not his death was in fact attributable to a crib death?

A. I would have assumed that this had been done before the final autopsies were completed."

A. Yes.

Q. Does that refresh your memory Doctor?

A. I recall that, yes.

Q. So you do recall saying that this, and I take it the reference to "this" is



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Exhibit 198?

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A. Yes.

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Q. Would have been prepared by the pathology department, or whoever in the pathology department prepared it prior to the final autopsy report being complete?

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A. One can't be sure because I can't recall it being prepared but I --

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Q. But you do recall that that was your initial assumption?

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A. Yes, that was my initial assumption.

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Q. And now you are saying that you can't be sure, is that fair?

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A. Yes.

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Q. Now, you also recall that Ms. Cronk indicated, and I suppose this is subject to proof later, that this document was apparently prepared on the evening of March 24th and the morning of March 25th. Do you recall that?

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A. Yes, I believe that is what I said.

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Q. Did you not tell us in earlier testimony that you believed that the preliminary autopsy report was prepared on either March 23rd or

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March 24th, but you thought March 23rd?

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A. Well I had assumed it was one of those two days, but there is no date on the report so I can't be certain.

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Q. Yes, but I believe your specific evidence was: "I presumed", and I am quoting directly: "I presume it was on March 23rd, 1981".

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A. I presume it was the 23rd or the 24th.

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Q. Do you recall that evidence?

A. I think if you go on it said 23rd or 24th.

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Q. No it said 23rd or 24th before that.

A. Yes.

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Q. And after that it says: "I presume the 23rd".

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Q. And that was tied into the date that you received the slides so you could do your microscopic examination of the brain tissue?

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A. Yes, there is no date on the report so I can't be sure.

Q. I understand that Doctor, I understand that only too well.



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A. Yes.

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Q. Now did you also not indicate

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to us that the preliminary report and the final report

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are identical, because at the time the preliminary

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report was prepared.

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A. Yes.

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Q. Everything that had to be done

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to come to a conclusion had been done, had been

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completed, and in fact the only thing that was done

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between the two reports was a special lung stain which

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added absolutely nothing to the diagnosis and ergo

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the two were identical?

A. Yes, that was my feeling, yes.

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Q. So do you agree with me Doctor

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that in order to have prepared Exhibit 198 on the

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strength of your autopsy findings, one would not have

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to have in front of them the final autopsy report,

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which wasn't ready until March 25th, but it would be

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sufficient to have the preliminary report in front

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of them and that was prepared either March 23rd or

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March 24th?

A. Yes, if it had been typed

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within a reasonable amount of time it would have been

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available.

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Q. Doctor, I thought you told us

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earlier that the preliminary and the final autopsy
reports were all prepared and ready within two days
of each other?

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A. Yes.

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Q. So that if the 25th of March
was the date the final autopsy was prepared and ready,
we have to assume, do we not, that the preliminary
autopsy report was prepared some time before that?

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A. Yes.

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Q. And that is consistent with your
evidence about it being either the 24th or the 23rd?

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A. Yes.

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Q. So, I again ask you the question.

In order for one to have in mind your autopsy findings when preparing Exhibit 198.

A. Yes.

Q. It is not necessary for them to have had the final report in front of them, it would be sufficient to have the preliminary report in front of them?

A. Yes.

Q. Do you agree with that?

A. Yes, that could very well have happened.

MR. TOBIAS: Mr. Commissioner, I have about 15 minutes more and it is now 4:30. I am painfully aware of the comments that you made on Thursday to Miss Cronk about how Counsel often predicts 15 minutes and the 15 minutes turn out to be 25 minutes or a half an hour. I am totally in your hands, sir.

THE COMMISSIONER: Well, if I thought that rising now might give you an opportunity to gather your thoughts and put together the questions.

MR. TOBIAS: Well, in fact it may have that effect and it may allow me to shorten my anticipated 15 minutes, Mr. Commissioner.



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THE COMMISSIONER: Yes, all right.

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Well, we will put off your examination. Have you any word for us, Mr. Young?

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MR. YOUNG: I have been trying to get in touch with Mr. Percival but have been unsuccessful. I certainly would have an answer by tomorrow morning.

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THE COMMISSIONER: Yes. Well, we will

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temporarily put it on for Wednesday but I see no

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reason why we can't at 4:30 tomorrow night discuss

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the question of this summary, dispose of that question.

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We will do that tomorrow night and I would like you

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all to have your answers or to pass them on to someone

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else so that they can be given if you are not going

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to be here at 4:30.

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MS. CRONK: Before we rise, could we

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have an estimate from Counsel that have not yet

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conducted their cross-examination as to time?

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THE COMMISSIONER: Well, we have 15

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minutes for Mr. Tobias. Have you changed your mind,

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or at least have you made up your mind?

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MR. STRATHY: I do still have a few

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areas that haven't been covered. I don't think I

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would be more than about 15 minutes.

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THE COMMISSIONER: Mr. Young?

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MR. YOUNG: I suspect we will have no

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questions, Mr. Commissioner, but if we do it would be
no more than five minutes.

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THE COMMISSIONER: Yes, all right.
Well, I don't know whether you gentlemen - Mr.
Shinehoft, you haven't been called on yet.

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MR. SHINEHOFT: Yes.

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THE COMMISSIONER: I looked for you
Mr. Labow but you weren't around. Have you any?

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MR. LABOW: I don't expect to have any
questions.

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THE COMMISSIONER: Mr. Olah, have we
been through you? Well, you deferred, didn't you?

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MR. OLAH: Yes, I took that liberty.
I suspect that I would be about 20 minutes, Mr.
Commissioner.

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MR. SHINEHOFT: I may be about 15
minutes or so, Mr. Commissioner, in my cross-
examination of this witness.

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THE COMMISSIONER: How long are you
going to be, Ms. Cronk?

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MS. CRONK: Not very long, sir, as it
stands now.

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THE COMMISSIONER: Well, conceivably
your next witness is Dr. Mancer.

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MR. LAMEK: Yes, Dr. Mancer. Perhaps I



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could ask him to be available after the break tomorrow morning, that sounds about right.

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THE COMMISSIONER: Well, ask him to be available. I wouldn't ask him to be here but ask him to be available so that he can come within 20 minutes if we allow for that.

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MR. LAMEK: Sure.

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THE COMMISSIONER: Yes, all right, we will adjourn until 10 o'clock tomorrow morning.

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MR. LAMEK: Thank you, Mr. Commissioner.

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--- Whereupon the hearing was adjourned until Tuesday, September 27th, 1983 at 10:00 a.m.

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